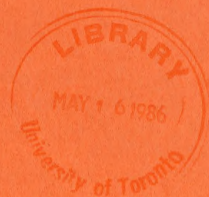


Digitized by the Internet Archive
in 2022 with funding from
University of Toronto

<https://archive.org/details/31761114667389>

CA24N
XC 2
- 85N22

SELECT COMMITTEE ON ENERGY
ELECTRICITY DEMAND AND SUPPLY
FRIDAY, APRIL 11, 1986



SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Ashe, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, R. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Polsinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitution:

Brandt, A. S. (Sarnia PC) for Mr. Jackson

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy

Snell, B., Consultant; with Canada Consulting Group Inc.

Witnesses:

Individual Presentations:

Gillespie, R., Executive Vice-President, Canadian General Electric Co. Ltd.;
Chairman, Joint Industry Task Force; Director, Electrical and Electronic
Manufacturers Association of Canada

Lind, J., Chairman, Association of Major Power Consumers in Ontario

Lounsbury, T. B., Executive Director, Association of Major Power Consumers in
Ontario

Steel, G., Representative, Consulting Engineers of Ontario; with MEL
Consultants Inc.

Armour, D. E. P., President, Electrical and Electronic Manufacturers
Association of Canada

Donovan, R. E., President, Babcock and Wilcox Canada

Lawson, D., President, Candu Operations, Atomic Energy of Canada Ltd.

Gardiner, J., Vice-President, Canadian Operations, Civil Engineering, Acres
International

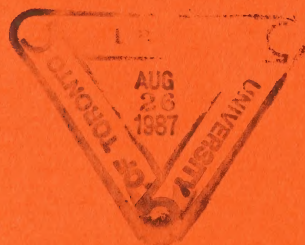
Aspin, Dr. N., President, Canadian Nuclear Association

From the Pollution Probe Foundation:

Isaacs, C., Executive Director

Hall, S., Co-manager, Ecology House

Brooks, J., Conference Manager, Energy Forum '86



LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Friday, April 11, 1986

The committee met at 9:38 a.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: Come to order, please. Good morning. We will be glad to hear from the official spokesman for the first panel.

ROBERT GILLESPIE, JOHN LIND, T. B. LOUNSBURY, GLENN STEEL, DAVID ARMOUR

Mr. Gillespie: My name is Robert Gillespie. I am chairman of the Joint Industry Task Force, which I will explain to you in a moment. I am also a director of the Electronic and Electrical Manufacturers Association of Canada and executive vice-president of Canadian General Electric. The Joint Industry Task Force comprises five associations: the Electronic and Electrical Manufacturers Association of Canada or EEMAC, the Canadian Nuclear Association, the Canadian Electrical Contractors Association, the Consulting Engineers of Ontario and the Association of Major Power Consumers in Ontario.

The people who are with me this morning on this panel are David Armour, who is sitting up there in the corner behind the projector, president of EEMAC and part-time projectionist.

Mr. Ashe: A high-paying job, too.

Mr. Gillespie: At the table here, on my left is Glenn Steel from the Consulting Engineers of Ontario. On my right is John Lind, chairman of AMPCO, the Association of Major Power Consumers in Ontario and vice-president of St. Marys Cement. On my far right is T. B. Lounsbury, executive director of AMPCO. Not here this morning, but a member of the Joint Industry Task Force, is Norman Purdy of the Canadian Electrical Contractors Association.

I would like to comment as we go into this that as the Joint Industry Task Force, we are something of a mixed bag. As do most people appearing in front of a committee of this type, we have particular interests and perhaps selfish interests.

It might be worth noting that in this Joint Industry Task Force, which has been in existence for a number of years now, we not only have manufacturers of electrical equipment and manufacturers of nuclear equipment, but we also have the groups that install and use the equipment: the contractors, the consulting engineers who pull it all together and the major power users. AMPCO, as I understand it, represents a group of people who use 20 per cent of the output of Ontario Hydro.

In the sense that we are a group with particular interests, we represent a diversification of interests, from the point of view of supplying, installing and using the equipment and buying the power that the equipment provides. As a group, we represent companies that employ 250,000 people. We are talking for people and jobs representing one quarter of a million employees. We are here because we were fortunate enough to be invited back,

having previously submitted a paper to this committee in February 1986, which is in the record. In that paper, we indicated our concern about the overly conservative forecasting of the requirement for electrical power in Ontario.

Mr. Sargent: Was it was a small c on the conservative?

Mr. Gillespie: Yes.

We also submitted with our presentation this paper, which is a Joint Industry Task Force publication produced about 18 months ago. The essence of this publication is to encourage people in Ontario who are users of power to use electrical power wherever possible. We believe that electrical power is a clean and efficient source of energy and a productive tool that, in converting to electrotechnology in many other industries, will provide a more productive and world-competitive industry.

Given that our theme and endeavours in the past few years have been to encourage many of our primary and secondary manufacturers to move to electrical energy wherever possible, we are therefore in a situation where, having made that transition in many cases, we are concerned that the supply of electrical power over the next decade be one that is secure and cost-effective. In that regard, we thank you for allowing us to come back and make this presentation today.

The basic concern we have is that the forecasting assumptions used by the Ministry of Energy and Ontario Hydro are overly conservative in terms of what we expect is likely to be the reality in Ontario. We will try to elaborate on that as we go through a short and fairly simple presentation to explain our concern. We have submitted a copy of these slides to the clerk so that they can be in the record.

The first slide was extracted from a letter from Patrick Lavelle, Deputy Minister of Industry, Trade and Technology, to Tom Campbell, which was recently reviewed in this room and submitted as exhibit 34 in these hearings. We were encouraged to use extracts from the letter to open our presentation because it is so close to the position and mandate of the Joint Industry Task Force that rather than quote our own material, we thought it might be appropriate to quote material from the ministry that suggests that low-cost, competitive and predictable electrical power for industry should continue to be a priority.

Energy-intensive and heavy industries provide an important part of the industrial backbone of the economy. It continues to be important to producers that they can plan future activity with the conviction that electric power policies and rates will complement their interests. Electrotechnologies--a word we have used very frequently in our task force--are providing benefits and productivity, energy management and system control, and are producing large dividends for Ontario. Electricity produced from indigenous resources is the prime energy of Ontario and is uniquely suited to the quickly changing, technology-based society we live in.

I would now like to go on and comment on the load forecasts and the load-forecasting process, the relationship between electricity demand and economic growth and the concerns of our industries with respect to these topics. Hydro's recent forecasts have been low. The peak demand has grown at a

rate of 6.7 per cent per annum in the past three years. The annual energy demand has grown at a rate of five per cent per annum in the past three years.

9:50 a.m.

Slide 2 shows load growth against Hydro's 1982 forecast. You will see that between 1982 and 1985, whereas Hydro projected a 3.8 per cent annual growth rate, the actual growth rate in peak power proved to be 6.7 per cent. In the actual energy used, the Hydro forecasts were at 3.3 per cent. In fact, they grew at five percent. These are very significant differences when projected over time.

Slide 3 indicates that in the past few months it has come to light that the errors are still continuing even on very short-term forecasts. Hydro's one-year forecast errors for both peak and energy have been much greater than in previous years through the months of November, December, January and February. These errors are up to five per cent on forecasts that were made within the past 12 months. We believe the forecasting errors relate in part to the models used by the ministry and Hydro.

In the ministry's energy policy papers released in the early 1980s when it first started using its end-use model, it indicated that it did not consider the model suitable for electricity system planning purposes. The model was said to be useful for considering trends and the possible effects of policy decisions, but it appears to us that it now is being used for forecasting. Hydro appears to be relying heavily on its end-use forecast model, possibly to avoid obvious conflict with the Ministry of Energy.

Slide 5 compares the Ministry of Energy's forecasts between 1984 and the year 2000 with Ontario Hydro's forecasts for the same period. The forecasts of gross provincial product growth are similar, but the range of electricity forecasts are higher for Hydro than for the ministry. The bottom line in each forecast indicates a ratio of electricity to gross provincial product. These growth rates, when compared, would indicate a 0.8 ratio in the case of the Ministry of Energy forecasts and a range of 0.6 to 1.1, averaging a 0.9 ratio, in the Hydro forecasts. Again, the differences, although small in degree, are very significant in terms of the effect over time of the power requirements needed. As we will show, the difference between those forecasts of electrical use to the gross national product and the traditional are very significant and of concern to us.

Mr. Sargent: What does the difference between the Ministry of Energy and Hydro tell you?

Mr. Gillespie: It tells us, and we will try to demonstrate it to you in the next few slides, that there is a long-standing relationship between the rate of electrical energy that has been used in this province and the growth of the gross national product. In the models being used now by Hydro and the ministry, we are concerned that they are projecting a very significant discontinuity in that relationship, which we do not accept.

Slide 7 is from Hydro's presentation to you last week. There is a relatively strong and consistent relationship between electricity demand and the gross provincial product. From the straight line we have superimposed on the graph--perhaps, David, you can point out the straight line following that curve--we can calculate that the electricity growth rate has been 1.4 times the gross provincial product growth rate over the past three decades. Hydro's

dotted line, indicating its future projection, appears to be extrapolated from the experience of the last three years only. That is that little flat part right at the end of the long-term curve. You might recall, two slides ago, I pointed out that both the ministry and Hydro were projecting a relationship of 0.8. The relationship we are projecting is 1.4, which has been the traditional one. We believe it will be a very bad mistake if the projection shown on that forecast is used for the planning of Ontario's future power requirements.

The basis of the flat forecast by Hydro is that over the last three years the demand for electricity has grown at five per cent whereas the gross provincial product has grown at six per cent, giving that ratio of 0.83. However, on slide 9 we have listed various factors, with which I think we are all very familiar, which caused the last three years to be subject to great temporary distortion. The economy has been recovering from stagnation and a 1982 recession which was the deepest for most manufacturing people that Canadians alive today have experienced.

The underutilized industrial and manufacturing capacity available at that time meant there was no need for new plant construction. The high inventory of resource materials and consumer goods at the start of this period was worked off over the period and required much less manufacturing activity. Therefore, industry was not gearing up for a continuation of the very high economic growth rates we had enjoyed previously.

To underscore our concern that a projection for the future not be based on the last three years of economic activity during a recession, as distinct from using much better historical planning information over the last 30 years, we would reflect personal experience in our industries. One statistic that continues to stay in my mind as an experience of my own company is that, on a constant-dollar basis, as we measure the index of industrial construction, its real value in 1985 got back to only the 1982 levels. We went through a period of three years in a deep recession with absolutely no growth. During that time, we submit there was a reduction in the requirement for electrical power generation. We also submit it would be foolhardy for us to base forecasting for the next decades on that three-year anomaly.

Going back, we believe the Ministry of Energy's factor of 0.8 and the Ontario Hydro factor of 0.9 are both too low, relative to what we believe is a much more realistic growth rate of 1.4 for electrical power usage compared to the growth of the gross provincial product. If we could go back to that slide where we show the last 30 years, I would like to make one other point. It has been suggested by some people that Hydro's forecast may be that conservative because of the effects of the disruption in oil pricing or the benefits which have been obtained from conservation.

I would like to make the point that it was in 1973 that the oil pricing transition took place as a result of the Organization of Petroleum Exporting Countries. It is also since that time that very significant conservation has taken place. In spite of both these factors, the curve has continued to go along the 1.4 ratio growth rate line. If there is to be a discontinuity in that long-standing relationship as a result of OPEC and conservation, one might expect it would have taken place before now.

10 a.m.

In many of the forecasting rationales that project no growth in the future, part of the explanation is that the savings we can expect from conservation in the future will mean that we will not be required to increase

the energy source in Ontario. Representing many users in Ontario, we submit that our efforts towards conservation have been very productive and will continue. Companies such as my own and those represented by the people in our industry task force have taken many big bites, but now we find the energy committees in our plants and organizations have to work much harder to gain much less in the way of conservation.

Slide 11 indicates that if the slope of electricity demand to gross provincial product increases at the same rate as in the past decade, the electricity growth rate needed to sustain a GPP growth rate of 2.8 per cent would be 4.1 per cent, not 2.5 per cent, which is the Ontario Hydro projection, or even worse, the Ministry of Energy's forecast of 2.2 per cent. To meet a GPP growth rate of 3.8 per cent, which based on projections I have seen for Ontario in the future does not seem to be out of sight, the electricity growth rate would be six per cent, not 4.3 per cent, or worse, the Ministry of Energy's three per cent.

The change in relationship assumed by Hydro amounts to a 7,000-megawatt difference in electrical demand in the year 2000. This is much higher than the 3,000 megawatts of conservation that Hydro told you last week is captured in its most probable forecast. The balance is unexplained.

Therefore, we conclude that Hydro's forecasts are too low and too conservative, particularly if they are applied to peak load rather than annual energy. The assumption that Hydro has reached a turning point in the link between electricity growth and economic growth is highly speculative. We believe it is not based on thorough analysis.

We have a couple of quotations here to which we want to refer. The first one is from Tom Campbell, who said recently: "It would be unthinkable for us to run short of power because that would, among other things, stall needed economic growth and job creation.... We must have the electrical power to meet rapid economic growth, however unexpected. It would be unpardonable to lose jobs because of shortage of power."

We also have this quote from Hydro's manager of load forecasting: "We estimate there is a 20 per cent chance that demand will grow by 4.4 per cent a year or more." Incidentally, as I have tried to point out, we believe the growth rates will be higher than 4.4 per cent.

We calculate that if all Hydro's committed plant is completed, if all the mothballed plant and combustion turbine units are utilized and if all supply and demand options, both reasonably assured and less reasonably assured, are implemented, the maximum load growth that could be met from now to the year 2000 is 4.7 per cent. That is close to Hydro's upside forecast and would require Hydro rolling out everything in the armoury and bringing it on line. We believe it is still too low.

Our conclusion is that Hydro may now have very little flexibility in choosing between options if it is planning to meet its own high-growth scenario. We are concerned that Hydro's high-growth scenario is too low. We have already seen curtailment of power to industrial customers and importation of power to meet Ontario's winter peaks. We believe there is a high probability that Hydro may already be too late to avoid the unpardonable. Planning to ensure continued reliability in the supply of electricity must move forward as expeditiously as possible.

If possible, I would like to put up that one slide again and simply

conclude to the committee that if there is one picture with which we would like to leave you, it is the reason we came here today representing 20 per cent of the customers of Hydro and 250,000 jobs: we do not believe the forecast shown by Hydro on the dotted line is a credible forecast. We do not believe the benefits of conservation and the effects of the changes in the utilization of oil will affect the growth rate of 1.4 per cent to the extent that is being projected by Hydro or by the ministry. If those changes had been that profound, we submit they would have happened a lot closer to 1973 than to 1986.

Thank you very much for listening. We would be pleased to try to answer any questions.

Mr. Chairman: Thank you, Mr. Gillespie. Members of the committee, I have Mrs. Grier, Mr. Haggerty, Mr. McGuigan, Mr. Brandt, Mr. Ashe and Mr. Charlton. We will start with Mrs. Grier.

Mrs. Grier: Thank you. We have not had anyone before us who has been very complimentary about the credibility of Hydro's forecasts for one reason or another, which leads me to feel there may be a number of reasons for that. I would be interested in your comments as to which reason you think is most likely. Nobody thinks Hydro's forecasts have been good. We could say perhaps that means Hydro is not a very good forecaster, that forecasting in this field is particularly difficult, or that people do not like Hydro's forecasts unless they happen to match their own biases and points of view. Which conclusion should I come to?

10:10 a.m.

Mr. Gillespie: I can express only a personal opinion in that regard, which is that the social forces at work, which cannot help but influence Hydro and the Ministry of Energy, are such that all of us as citizens would like to believe there is no unnecessary expenditure of capital dollars that will not realize a benefit to us in the future. In the present economic and political situation, with the cost of money and the extent of the debt Hydro has, there is a natural inclination to lean on the low side. Beyond that, I believe the feeling that conservation is going to play a significant part in the reduction of the use of electricity is an expectation which is unrealistic on the part of the people in Hydro.

Mrs. Grier: Have you done any analysis of your own members, who represent such a significant part of Hydro's market, of their expectations of what their rate of growth in electricity usage will be in future years?

Mr. Gillespie: I think I should pass that question to the Association of Major Power Consumers in Ontario, who are the users.

Mr. Lind: I am chairman of AMPCO. We have done studies similar to those done by EEMAC and the Joint Industry Task Force, and we have come up with numbers that are much greater than Hydro's forecast. We are looking at four per cent.

Mrs. Grier: Is that based on actual estimates of anticipated increased use, or is it the same kind of forecasting, talking about gross national product, etc?

Mr. Lind: It takes in the whole consortium of numbers that you can find to try to forecast. As you know, forecasting is a little nebulous anyway.

In questioning our members about where they feel the growth pattern is going to be with their own organizations, companies and associations, the numbers are coming out fairly close, and they are much greater than the Hydro forecast.

I also make another comment. Two of our large member companies are a little uneasy with the forecasting of Ontario Hydro and the growth it is looking for. We depend on reliable power to operate our companies and plants. We have a couple of companies that are looking elsewhere, primarily because of the reliability of electrical energy. They are looking in other provinces for expansion purposes.

Mrs. Grier: Mr. Gillespie commented that he felt Hydro had put too much stress on the end-use model in its forecasting. In its submissions to us, Hydro explained that, while it took it into account, it did not lean too heavily on it and agreed it did not have sufficient data to do a complete end-use-model forecast. I would be interested to know whether your comments were related to the inadequacy of the end-use forecasting Hydro has agreed it is in a position to do at this point because it does not have complete data, or directed to end-use models per se. There are some jurisdictions in which much more sophisticated end-use-model forecasting is being done.

Mr. Gillespie: I am not personally close enough to the modelling science to comment. I would ask if any of my colleagues on the panel are.

Mr. Lind: We are not very close to statistics modelling either, but we contact our members, as I have stated, and get their forecasts of their own operations, so that could be extrapolated into a provincial picture.

Mrs. Grier: You have not done any comparisons of the accuracy of forecasting in jurisdictions that have a greater reliance on end-use forecasting as opposed to the accuracy in Ontario. You have not gone into that kind of examination of the methods used to forecast.

Mr. Lind: No.

Mr. Haggerty: I recall a few years ago, about 1975 or 1976, when members of AMPCO appeared before the committee and they were deeply concerned about the projected increase of about seven per cent in Hydro's growth. They thought that was rather high.

I look at the comments this morning and the suggestion that it should be looking at somewhere around six per cent and an additional 7,000 megawatts. Yet Ontario Hydro, in one its documents presented to the committee just recently, was talking about better ways to promote loads that will better utilize surplus energy. That is anticipated over the next decade and it will give the committee some concern in this area of forecasting.

Perhaps the panel had some information that the committee members did not have when it projected the gross provincial product growth to be about six per cent. That is rather high with regard to forecasting, is it not? Do you have some hidden information back there indicating that some large industries will locate in Ontario? One of your panel members mentioned that because of the scarcity there may be in hydroelectricity in Ontario, there has been movement to other provinces. Is it because of cheaper power, for example, in Manitoba and Quebec?

Mr. Gillespie: I may have confused you in the presentation. It was not the intention to suggest that the GPP would grow at six per cent. We used

two models. One was a growth rate of 2.8 per cent, which, based on the traditional ratio of electrical power growth, suggested a 4.1 per cent rate in electrical power growth. The second model we used on the GPP was a 3.8 per cent growth. That is the highest one we used. That model suggests that the growth rate of electrical power will be six per cent. If the GPP grows at 3.8 per cent, the electrical power on a traditional basis will grow at six per cent.

In other words, if you take that curve you have in your hand and, instead of it flattening out forever, it continues to wind up that straight line we have drawn in the traditional rate, the growth rate in electrical power we will require will more likely be six per cent.

Mr. Haggerty: However, that curve is coming down in about 1985. I see it has dropped lower than that. There may be an indication that this curved line will go down further. We are geared to the present excellent climate of the automobile industry. No doubt that has pushed up the curve. The question is how many times they can sell a car to the consumer. There are indications on the American side that automobile sales are down considerably. I suppose it will follow here four or five months later on. We will probably get the impact some time in September, if we are looking at estimates of the economy and forecasting.

Mr. Gillespie: If you look at this curve, you will see it is a bit similar to the stock market. It has not been winding up there since 1945 without some cyclicity, whereas you correctly point out that on the basis of the present position, it appears to be on a flat or slightly downward projection.

Our contention is that we do not accept that there is likely to be a long-term downturn in Ontario's gross provincial product growth. Our contention is that the electrical use relationship will continue. That is a matter for personal conjecture as to whether you think Ontario has peaked and is starting to decline in terms of its economic activity.

10:20 a.m.

Mr. Haggerty: No. That line indicates pretty well what the committee found in 1979 or in 1980 in dealing with energy issues. The committee suggested that there would be no more peaks and valleys in our economic growth--you might say in Hydro growth too. The indication at that time was that it would be a period of levelling off. Going back to the previous graphs, the indication is that you can see it start dipping down and levelling off in 1985. In other words, you will not find those peaks and valleys any more; it will be stabilizing by the year 2000. Hydro has indicated that, and it is possible that, with its surplus, there is no need for any future generating capacity beyond the Darlington plant.

Mr. Gillespie: As users, our concern is that the surplus is overstated. AMPCO might like to comment with respect to experience last winter.

Mr. Lind: There were a few interruptions last winter for the industrial customers because of lack of energy.

Mr. Haggerty: Do you mean specific locations? What are we talking about? Was it due to transmission lines or what?

Mr. Lind: The Niagara Peninsula.

Mr. Haggerty: We have locked-in energy at Bruce.

Mr. Lind: Yes, we have that problem. The Niagara Peninsula was out; the east of Toronto and also western Toronto were interrupted.

I might make one comment. You were talking about the auto industry being on a downward turn at present.

Mr. Haggerty: On the American side now, there is a trend towards slowing down.

Mr. Lind: It is the smallest user of electrical energy in the industrial group. Its growth is climbing because of robotics versus what it was three or four years ago, but it is the smallest user of electrical energy per unit of product.

Mr. Haggerty: Which is the biggest user?

Mr. Lind: The mines and the pulp and paper industry. Pulp and paper may now be going to a thermomechanical or electromechanical process of manufacturing pulp that is going to use more electrical energy than it has in the past, rather than the chemicals it was using before.

Mr. Haggerty: Cogeneration?

Mr. Lounsbury: We have a slide here. Mr. Gillespie, I believe you can speak to that.

Mr. Gillespie: The slide points out that in-service capacity, including Pickering, is at 24.2 gigawatts. The peak load is at 20, suggesting an actual reserve margin of 18.6, somewhat lower than 25 per cent, which seems to be generally accepted as the number Hydro should have. However, because of the peak situation, the actual reserve in December 1985 was 6.4 per cent.

Generally speaking, the guy to whom you talk in the subway seems to feel Hydro has vast reserves of unused capacity. The fact is, when we need it most, that reserve looks to us to be about 6.4 per cent.

Mr. Haggerty: Was the biggest use for December?

Mr. Gillespie: Yes.

Mr. Haggerty: That is the time everybody is using power for Christmas lights, lighting up the falls and everything else.

Mr. Gillespie: That is true, but we are living in a society today in which we do not expect the lights to go out at any point, or plants to be inoperative.

Mr. Haggerty: If we turned off the lights in the office buildings at night on Bay Street and places down there, we could conserve quite a few kilowatts. There is no effort made in that area, but I should not get on to that. I was concerned about that area anyway. We will have to take a look at past committee reports and the recommendations on electrical growth in the province.

Mr. Lind: May I make one comment on the 6.4 per cent of actual excess capacity? That included all the mothballed plants Hydro has.

Mr. Haggerty: It included those?

Mr. Lounsbury: Excluded.

Mr. Lind: I am sorry. It excluded the mothballed plants.

Mr. Haggerty: Then there is a reserve, is there not?

Mr. Lounsbury: It would take two years to bring back on the service system.

Mr. Chairman: What do you estimate the economic cost of those interruptions to be?

Mr. Lind: I do not have that figure. Depending on the industry, it would not be a great amount other than labour costs in some cases. In other industries, such as the pyrochemical industries or pyro-processing, where the product might freeze in the vessels, it could be a substantial cost.

Mr. Chairman: What advantage is there to being on an interruptible rate as opposed to a noninterruptible rate?

Mr. Lind: Each industry has to calculate those advantages and disadvantages itself and weigh the pros and cons of how many times it is going to be interrupted. There is an advantage in dollars to being on an interruptible rate if it is not going to be of great cost to the plant or process to have to shut down for a time.

Mr. Chairman: As I understand the theory behind the interruptible rate, it runs on the surplus. The capacity factor in that rate is either less or does not exist at all. Am I close to being correct?

Mr. Lind: The interruptible rate means that, if Hydro is reaching its system peak, it can interrupt certain industries that are purchasing the interruptible power.

Mr. Chairman: Yes, but the reason the rate is lower is that it runs on the surplus, essentially. You do not have the same capacity factor you would have for a guaranteed supply, a noninterruptible rate.

Mr. Lind: Do you mean the capacity of the manufacturing plant?

Mr. Chairman: I mean the capacity of the system to produce electricity, the capacity side of the rate block.

Mr. Lind: Yes, it runs on the surplus.

Mr. Haggerty: Are there any problems in northeastern or northwestern Ontario with supplying hydro to the local industries? You talk about the paper industries. Is Ontario Hydro going to run into difficulties in that area if they switch over to using more electricity in processing paper?

Mr. Lounsbury: In 1995 we will.

Mr. Brandt: I wanted to pursue the question of the interruptible customers. Since you receive a discounted or reduced rate as a result of buying that kind of power, in the instances you mentioned when power was not available, had you been paying a firm price, or the usual or normal price for

power, would you not have had an interrupted service? The capacity was there to deliver, but it was not delivered because you were buying a different type of power.

Mr. Lind: I am not too sure whether the industry in the Niagara Peninsula is buying interruptible or not, but I know it was interrupted over the Christmas season.

Mr. Lounsbury: Naturally, the first people cut off are the interruptibles; the next are those paying the firm price. As I recall, on March 10 in the southwest, because of problems at Bruce, everybody was interrupted for three and a half hours.

If a process company such as fibreglass is interrupted for 15 minutes, it loses two days' total production, so we are talking about a very significant cost.

Mr. Lind: A firm such as that would not buy interruptible.

Mr. Brandt: Fibreglass is very close to my heart, since it is located in my riding. I do not know whether you chose it specifically because of that.

Mr. Ashe: It was just a coincidence.

Mr. Brandt: Are you speaking of the type of fibreglass plant that is located in the great riding of Sarnia?

Mr. Lounsbury: Yes, I am.

Mr. Brandt: You did not pick that one-out of the air by some chance, did you?

Mr. Lounsbury: No. Mr. Chairman will vouch for that one.

Mr. Brandt: I am glad you have done your homework and know where we all come from. That is a good indication.

Could you give me some indication of what your respective organizations feel is an adequate level of surplus power?

Mr. Lounsbury: We think it is 25 per cent.

Mr. Brandt: Is that agreed upon by all of you?

Mr. Lounsbury: That is general utility practice.

Mr. Brandt: I do not quite know how you arrived at the actual reserve of 18.6 per cent and the number you give of it as being 6.4 per cent. I guess that is a dispute between the way you and Hydro calculate the actual reserve. Even using their high figure, if you make them that allowance, you are saying they are seven percentage points short of what they should be.

Mr. Lounsbury: That is correct.

10:30 a.m.

Mr. Brandt: With respect to the chart you wanted us to have firmly

fixed in our minds, I looked at that as being one of the focal points of your presentation. There was a departure from the gross provincial product, the tracking of the power demand and the kinds of questions Mr. Haggerty was pursuing with respect to the flat-lining of growth from approximately 1985 through to 2000.

In your presentation, you made the point that the big bites have already been taken out of the system. We have had literally days of presentations before this committee which indicate that we have not scratched the surface of conservation measures.

As an example, we had a company here yesterday which is in the business of conservation and energy saving. They are consultants who work with industry. They have indicated that because of the economics of scale, they have not even begun to look at small companies. They hope that Ontario Hydro gets involved in a program of energy efficiency with smaller companies. They have been looking, in their circumstance, at rather large companies where there are large energy savings and, therefore, large dollars to be accrued as a result of those activities.

From your presentation and from what we have heard consistently from a number of delegations that have been before us, there is a major difference in what they anticipate can be realized by way of future energy savings through conservation efforts and what you have stated today. I wonder whether you might want to elaborate on why you think we have reached the end of conservation efforts and there is very little left in the system to be wrung out, if you will, as a result of what has gone on in the past.

In all fairness, we have not done a great deal about the appliance industry. We have not made the changes that have been placed in position in the United States, where they have taken advantage of this type of thing far more aggressively than we have. There is a whole series of conservation efforts and we as a committee, from the way the questions have been raised by the committee members, feel that conservation is just coming into its time frame, not that the big bites have been taken out and the activity is exhausted.

I wonder whether you might expand a little bit on your position that we have gone as far as we can go in conservation. I think that is what you said.

Mr. Gillespie: I do not think I said that and if I did, I did not intend to say we have gone as far as we can go. What I tried to convey is that even if we accept the figures used by Ontario Hydro for conservation, there is still a discrepancy between the amount of power required and what we believe will be available with the flat forecast.

On commenting on its expectations for conservation, the point we wanted to make was that whereas there is still an ongoing effort and a very productive effort to make gains, based on the experience of the people represented by the associations here today, we find we were making bigger gains a few years ago than we are today simply because we got the big hits up front.

I would not want to suggest that there is not a lot to be obtained in the future. Once again, when one is talking to any particular group, one has the viewpoint of that group which is usually exaggerated to support its position.

Mr. Brandt: Present company excepted, of course.

Mr. Gillespie: Present company probably not excepted. There are people who will come here and tell you that the wheels of industry can be turned by solar power and there are other people who will come and tell you that we can do it all by having small hydro. If they say that, they probably believe it. I do not believe it.

As far as conservation is concerned, there are a lot of people who are working in that regard and who will make significant improvements in the future. New systems coming on line will be more cost-effective and will conserve more. There are a lot of basic industries in Ontario which need energy to convert material from one state to another. That basic energy is a function of the laws of physics and the laws of nature. The degree to which we can make major advances to equal Ontario Hydro's expectation is debatable; to exceed its expectation is probably unlikely. We are simply making the point that even if you accept its forecasts, we say there is an inadequacy in the projection for electric power use. We are qualifying that by saying that we are not even sure we can accept its forecasts for conservation.

I would ask whether any of my colleagues would like to comment further.

Mr. Steel: I would like to make a comment, if I may. The forecast that Ontario Hydro is projecting also includes what it calls natural conservation of about 3,000 megawatts. Its calculations assume that all of the three-year payback type of projects are done during this period to the year 2000.

It has been our experience--my experience in particular in industry, and I have been involved fairly heavily during the past two and a half years with conservation activities in industry--that this three-year payback situation is really overstating the case. The items that could be done now or that exist now and perhaps offer one- to two-year paybacks probably have been done. Those that offer two- to three-year paybacks are competing with money in industry for projects that involve the process, the plants, money that is necessarily spent on other things, and it has been our experience that companies do not readily proceed with those projects that have two- to three-year paybacks.

It seems this assumption that 3,000 megawatts will come out of the forecast because of natural conservation, or conservation that will occur naturally by those people without any incentives or without any help, is overstating the case.

Mr. Lounsbury: Mr. Brandt, if I may just add to that, I talked to Dow Chemical Canada Inc. and to Imperial Oil Ltd. in Sarnia. Both of them feel that they are 80 per cent there and that the other 20 per cent is going to be very costly to get.

Mr. Brandt: As I recall, Dow is still an exporter of energy to its United States plant in Midland, Michigan. Is that not correct?

Mr. Lounsbury: Yes, that is correct.

Mr. Brandt: It has a lot of built-in energy stored within that plant that can be used in-house, if you will, if circumstances require it. Did it take that into account in its discussions with you?

Mr. Lounsbury: Yes.

Mr. Brandt: I have a couple more questions, if I may. In the light of the United States experience, some of the environmental problems related to matters not very different from the difficulty we have releasing the power at the Bruce that Mr. Haggerty commented on, developing the lines--which do cause some aesthetic problems, if not environmental problems--in the United States they are talking about perhaps 15 to 20 years' lead time for bringing on new power, particularly nuclear plant. If we are looking at new nuclear facilities, from the experience that has now become rather the norm in Ontario as well, and recognizing that at one time we had a shorter time frame for bringing a new plant on stream, what would you consider to be a reasonable time frame? This may be a guesstimate on your part, but you are close to the industry and would have some indication of what you think is realistic. What do you think is a reasonable time frame for bringing new power on stream in Ontario in the light of all the current circumstances?

Mr. Gillespie: My answer to that would be 10 years.

Mr. Lounsbury: It should be 10 years but, realistically, currently it is 14 years.

10:40 a.m.

Mr. Sargent: May I comment on that? You have probably heard of pyropower in Chatham, New Brunswick. It has about 17 plants scattered around the world. It is a fluidized bed combustion process for burning pulverized coal. It is clean and the plant can be brought on in from three to six years in full flight. They are doing that in the United States now because of the fall-off in nuclear plants and the time frame. The fact is that, with regard to specific things we could recommend that would be in place to meet demand in the early 1990s, this setup is one of the hottest things in the market today in setting up new fast plants that are clean and very economical. They use a time frame of 10 to 14 years; it is known a bit now, but this is the way to go.

Mr. Brandt: I think I have the answer to that one. Since you took issue with the forecasts of Ontario Hydro and the Ministry of Energy during the past three to five years, how accurate have your forecasts been in that same time frame? Have you taken forecasts we can look at that would indicate where you have been in relation to the other two speculators in the market relative to future demand? It is easy to look back; it is somewhat more difficult to look forward.

Mr. Gillespie: Exactly. I do not really think we can offer that we have some superior and reliable forecasting group within our associations. We are here today really as people who have a hell of a stake in the industry as employers, as consulting engineers or as users; and we are here today saying, if you like, in a somewhat parochial and folksy manner, that we have 30 or 40 years of experience behind us, and that line seems to be a fairly reliable experience factor. We are suddenly seeing the output that supplies the power calling an abrupt discontinuity, and we do not have any conviction that there is any evidence that this abrupt a discontinuity is supportable.

We cannot really offer that we have a forecast such that we could assure you we were smarter than the other guys. In fact, our general attitude is that most econometric forecasts are wrong anyway and that the complexity now of those models that people are building is such that the forecasters start to argue about very small differences in their models. However, the reality in the world is usually different from what was forecast anyway because of a lot of factors that were not in the models.

In our opinion, we have to be concerned that there is a dependance being put on forecasting of this type, using all sorts of econometric models and all sorts of computer runs to say that this is what is going to happen, when we, as people in the industry, 250,000 of us, are saying, "If they are wrong, it is going to be a hell of a mistake."

Ontario is here today. We all have our standard of living and we all enjoy a very good one, in part because we have always had a very efficient source of electrical power and low-cost electrical power. If we allow that to diminish, we will be in trouble.

I am stating the obvious, I know, but in answer to your question, we are really not in a position to get into arguing about whether we have a better computer model than somebody else. We are just saying that good judgement tells us that projection does not make sense.

Mr. Brandt: The only way we will know, of course, is four or five years from now when we can look back at what you said today and at what the Ministry of Energy and Ontario Hydro said.

But would you not agree that there are a very considerable number of circumstances relative to changes that will probably take place during the next decade or decade and a half that have not really occurred during the course of the past 40 or 50 years? I cite the volatility of the oil price situation with the Organization of Petroleum Exporting Countries, which may move some people off electrical power and onto fossil fuel use, and the introduction of massive power projects in both Quebec and Manitoba, where surpluses, I think, can be anticipated and where excess power might be available for purchase by Ontario Hydro.

Do any of your forecasts take into consideration some of those obvious circumstances? As a supplementary to that, do you feel there is any problem from your vantage point in Ontario becoming a purchaser of large units of power from those two jurisdictions specifically, Quebec and Manitoba, in the future, if they can be made available to us at a realistic rate? Does it matter to you that the power is generated in Ontario as opposed to being purchased from another jurisdiction?

Mr. Gillespie: It probably matters to Ontario, to the people whose businesses are in Ontario and to the taxpayers in Ontario. I know that the experience with some of the consulting engineers who are involved in our joint industry task force is that a number of large projects in the last year that were being looked at to be located in Ontario are now going to be located in alternative provinces because of availability and because the projected price of electricity is going to be less.

If you had an energy-intensive industry and if you had the choice of putting it in a province that had clearly inexpensive and available power versus a province that might have to buy it from next door, where would you put your industry?

Mr. Brandt: In my former life as Minister of Industry and Trade, not once did I have an industry come forward at any time to indicate that a lack of power in this province was acting as an impediment to its developing here in Ontario. I would have thought that, given the role of advocate for business that I played at the time, they would have come forward and said, "We are completely at odds with Ontario Hydro in terms of the power availability and we are going to locate in Michigan, Ohio or Quebec as opposed to Ontario."

That never happened once, and I would be disappointed if what you said is absolutely correct, because they should have come forward. Then I could have lobbied with Ontario Hydro and said that an auto plant, a petrochemical complex or whatever required power and could not get it. But that never happened, so I am surprised at what you said in that respect.

I apologize for the length of my questioning. I look at jurisdictions purchasing power, like Ohio, Michigan and New York state. They are experiencing a level of growth, development and job creation that is comparable to that in Ontario, and they are net purchasers of power from Ontario at the moment. It does not seem to follow that as long as energy is at a competitive rate, whether you purchase it or produce it, it makes that much difference. I wonder whether you might comment on that.

Mr. Gillispie: I will ask my colleague from the Association of Major Power Consumers in Ontario to comment.

Mr. Lind: One comment, Mr. Brandt, on the purchasing of power from our neighbouring provinces is that if we are anticipating something like that, we should start the hearings going now to get transmission facilities built, because they are not in place at the current time. We all know what is going on in trying to get the power out of Bruce. If we have to go through that series again to get electricity from other provinces, it is going to be a long, drawn-out affair.

The reason I believe our neighbouring states are net purchasers of power from Ontario Hydro is that they have not had the money to build their own facilities, and environmentally it is not suitable for them to build generating facilities in those locations.

10:50 a.m.

Mr. Brandt: That still does not get to my question about whether there is a net negative benefit to a jurisdiction that purchases power or produces power. Many companies have come into this province and have looked at Ontario Hydro as a secure source of power availability. Its track record over the years is comparable to that of literally any other jurisdiction in North America, in spite of the fact that we may be at odds with forecasting and so forth. I have personally not experienced a situation in which a company has said, "We are not going to locate in Ontario because we do not think you are going to have the power available." Maybe Ontario Hydro has had such a submission; I am not privy to it. But I certainly have not personally had any indication that that has been the case.

Mr. Gillespie: Mr. Brandt, I am not very surprised at that. First of all, I totally subscribe to what you have said about why companies have located in this province and that the availability of reliable and inexpensive power was a very significant element in the development of the manufacturing industries in Ontario; there is no question about it. That is why we are here today; we want that to continue. The only question is whether we are going to leave ourselves weakened as a result of a forecast that is inadequate.

With regard to the suggestion that decisions have been made to go outside the province, I am not very surprised that you have not been involved in those things, because most of the companies we are talking about are large companies, frequently multinational or multiprovincial companies. In situations where you are working with consulting engineers and you reach a conclusion that you are not going to be here, you are going to be there, you

certainly do not tell them they can go and explain that their clients have made a decision which is going to be politically unacceptable in one province and highly acceptable in another province if you can avoid those problems. I can only tell you that, on the basis of what I have heard, this has happened on a number of occasions, and I believe it to be true.

Mr. Haggerty: Has Hydro-Québec not got a policy, a little sweetener, that says, "If you come to the province of Quebec to locate your industry, you can get a long-term contract with Hydro-Québec at a preferred rate"?

Mr. Gillespie: I believe it does and I believe Manitoba has the same thing.

Mr. Lounsbury: If you and I agreed to start a plant in Quebec today, we would not qualify unless we got it on line within two and a half years. Then we would get only 10 per cent for half a year.

Mr. Chairman: Can we come back to the rotation? Were you finished, Mr. Brandt?

Mr. Brandt: I have not finished, but I am going to give up the floor.

Mr. Chairman: Mr. Sargent, I think, had a supplementary. Is it a supplementary? Since it is your birthday, I will be a little lenient.

Mr. Sargent: Basically you guys are the lightning rods of the industry. You are concerned about General Motors coming on stream with this new plant. We are concerned about what specific things we could recommend that would be in place in time to meet the demands in the early 1990s.

You say that the taxpayers of Ontario would object to Quebec power. I doubt that very much. In fact, I think it would be a hell of a good move for us to make deals right now with Manitoba and Quebec to supply power in this province. As far as the taxpayers go, they do not give a damn where they get the power as long as they get it. All you care about is delivery and cost.

My main theme is that we do have an answer. Chatham, New Brunswick, is having a pyropower plant put in, and these pyropower plants can be built for \$1,200 to \$1,500 a kilowatt. They build them in units of 150,000 and 600,000. I think it is the way to go.

Is there any parallel in the United States or Europe that groups such as yours could set up your own grid--for example, a pyropower plant that would come on stream in three to six years so that you would be self-sufficient for industry? Is there any merit in that? Certainly you have all the funding and financing in the world; you would not have to worry about financing, because you represent the richest companies in America. You could be self-sufficient if you went your own route and said, "To hell with Hydro."

Mr. Gillespie: I do not think we have any positive response. David Armour wants to comment.

Mr. Armour: What we are overlooking on wheeling power, let us say, from one jurisdiction to another is that, if you have major power users, they have to have firm contracts. I do not think either Manitoba or Quebec will give us a firm contract when they can sell power at an awful lot higher price to the United States. It is simple economics.

Mr. Sargent: Are they not taking offers now?

Mr. Armours: Yes. Manitoba is probably moving towards a dedicated system, but dedicated to the US, not to us. That has been done in New Brunswick too. Major power users require security of supply. I do not think we can negotiate a deal at this stage of the game with either Hydro-Québec or with Manitoba.

Mr. Sargent: How can New York do it, for instance?

Mr. Armour: New York can do it because it can give them firm, guaranteed contracts.

Mr. Sargent: Can Ontario Hydro not give them firm contracts?

Mr. Armour: No. Ontario Hydro had to discontinue supply to New York recently, as you may recall.

Mr. Sargent: Can Ontario Hydro not give Quebec firm contracts?

Mr. Armour: No. They would not have enough reserve to give them firm contracts. We recently had to withdraw our power from New York just a few weeks ago. We had to interrupt supply from Ontario to New York. We have never negotiated a firm contract.

Mr. Chairman: Mr. Sargent is referring to moving power the other way, from Quebec to Ontario. Would Hydro not be in a position to give a firm contract to Hydro-Québec for purchase?

Mr. Armour: Yes, Ontario Hydro could, but I do not know that Hydro-Québec would be.

Mr. Lounsbury: We do not have the transmission line facilities.

Mr. Sargent: We can sure as hell get them.

Mr. Lounsbury: We do not yet have them out of Bruce.

Mr. Sargent: It is easier than building a nuclear plant.

Mr. Charlton: We have had presentations from a number of jurisdictions other than Ontario. To the best of my knowledge, none of those jurisdictions, some of them very industrialized jurisdictions similar to Ontario, is predicting even a 4.7 per cent load growth, let alone a six per cent load growth. That seems to me to say something about the level of Hydro's predictions as compared to what you are suggesting to us today.

Mr. Brandt raised the question of conservation measures, and you raised that question as well in terms of whether Hydro's calculations of natural conservation and strategic conservation are acceptable. Hydro's calculations, predictions or forecasts of natural conservation and strategic conservation are based on the fact that there will be no incentives for that conservation to occur other than the basic bottom-line economic incentives, the question of payback and so on.

Many of the jurisdictions we have heard testimony from have gone to major public sector initiatives to capture much higher levels of conservation. We are not talking about just the industrial sector; we are talking about the

industrial sector, the commercial sector and the residential sector. There have been some fairly significant and proven programs. There is also substantial evidence which we have received of some experimental programs in small locales to determine some of the real potential. It boils down to a question of not whether there is going to be growth in electrical demand but how best to get there.

11 a.m.

For example, the prediction you have given us today of the 4.1 load growth, which you say is still low, represented 7,000 megawatts. That is talking about another Darlington by the year 2000. With your prediction or forecast of six per cent potential load growth, we are talking about at least two Darlingtons in addition to the one currently under construction.

We have had substantial debate in this country--and the people that you represent have been substantially involved in that debate--about public borrowing, the levels of public debt and their impact on the economy. With the kinds of predictions you are making here today, what we are really talking about is somewhere between \$20 billion and \$30 billion added to the Hydro debt. What kind of impact it that going to have on Ontario's economy? What impact is that going to have on the growth that happens in Ontario's economy?

The other side of that question is, if we can determine in our process of study by other public sector initiatives where public sector money will be spent, but spent at much lower rates and adding a lot less to the public sector debt to accomplish the same thing, which route are we ultimately better to take?

Mr. Gillespie: I do not mean this to be facetious, but that is the \$64 question. I think that is why you are having the hearings. Our concern is that you are hearing a lot of argument for cutting back and projecting no growth, and we want to give you at least a position on the other side, which is that if you do that, you may compromise our industrial future.

Mr. Charlton: Remember, though, we have also heard a lot of testimony about where it has been done.

Mr. Gillespie: I cannot really comment on that part of it because I have not heard that testimony. Incidentally, we are not saying the economy will grow at 3.8 per cent or 2.8 per cent. If you want to say the economy is going to grow at 1.5 per cent, then you will get a different answer. Those growth rates are not unreasonable, based on historical growth, and our projections are based largely on historical precedent.

Mr. Charlton: It seems to me you are saying that in order to be safe, we should be planning for six per cent growth in hydro demand.

Mr. Gillespie: Yes. We are saying that what has happened since 1972-73, since we had the Organization of Petroleum Exporting Countries and the great drive on conservation, has not really influenced that growth curve significantly up until this time.

Mr. Charlton: What will happen to that growth curve if Ontario Hydro follows what you are suggesting and rips about \$20 billion to \$30 billion out of the private market?

Mr. Gillespie: I believe any investment made in electrical power generation which is ultimately utilized will be a profitable investment. The only risk is building a plant and then finding you cannot use it. We do not believe that is going to happen. You cannot be suggesting that if one invests in electrical power generation, one is going to lose money.

Mr. Charlton: Let me put it to you another way. You are saying if we build to cover six per cent growth in electrical energy, you are confident that energy is going to get used. The public risk is huge because we are talking about an awful lot of dollars. Is your organization prepared to sit down with your members and work out some package of sharing that risk if we were to build the six per cent growth? There will be no problem for you if, as you said, we use it all.

Mr. Gillespie: You say the problem will be very great if capacity is put in and it is not ultimately utilized economically. Our submission is that the risk is greater if the capacity is not put in.

Mr. Charlton: Hydro has predicted a 2.6 per cent growth in electrical demand. You are saying that, to be safe economically, we should be building for six per cent growth. You are saying there is very little risk. Are you prepared to share that risk?

Mr. Gillespie: To the degree that many of us here are representing manufacturers and engineers who have careers associated with the thing, if it is an investment that is not productive, we will all lose ultimately.

Mr. Charlton: Ultimately, we all lose what?

Mr. Gillespie: The sharing of it. We are all sharing that risk.

Mr. Charlton: I am talking about sharing the capital risk.

Mr. Gillespie: If we leave our plant in place to build the transformers that would be required and ultimately it proves they are not required, or that there is a decline in the growth rate in Ontario rather than an increase, we made a bad decision. If you are talking about whether we are willing to invest in the capital investment, I do not think you are talking to a bunch of financial investors; you are talking to engineers and manufacturers.

Mr. Charlton: I did not ask you to give me a proposal today. What I am asking is, are you prepared to sit down with your members to discuss and work out a package to accept part of the huge financial risk you are asking us to place on the public of this province?

Mr. Gillespie: My answer is that we would be doing that implicitly in that we are citizens of the province, investors in the province and employees in the province, and if we felt this was a dumb idea, we would not be recommending it.

Mr. Charlton: Perhaps you can comment on the other part of my question. You expressed serious scepticism about Hydro's numbers in terms of the conservation potential between now and the year 2000. As I have suggested, that potential calculated by Hydro was based on the assumption that little or nothing in the way of initiatives or incentives by the public sector would occur, that there were two kinds of conservations that would occur.

One would be that it would happen naturally because of the financial or economic incentives and some additional strategic conservation that Hydro could stimulate because of power buy-back rates and a number of other things, but no major initiatives on the part of the public sector to invest in conservation instead of investing in plant construction. If there were major initiatives in the public sector to invest in conservation, would your view change at all?

Mr. Lind: That becomes a cost-benefit deal.

Mr. Charlton: I understand that.

Mr. Lind: It has been stated that there have been major steps taken in energy conservation up to this time. What is left takes a lot longer and a lot more money. It may be that in some cases the system is not in place yet to consider that type of energy. We are getting into smaller lots with the bigger dollar. Eventually, those lines change and the cost becomes much greater.

Mr. Charlton: You are just repeating what you have assessed in terms of your members. We have had testimony here, for example, about the potential to reduce energy consumption by looking seriously at appliance standards, efficiency standards for appliances that home owners use across this province. We have heard testimony about the amount of power that potentially we can save in this province.

11:10 a.m.

We have heard from experts in your own area of economic development and growth about the potential to save from major initiatives on lighting in commercial complexes across this province. What I am talking about is identifying the potential. It is not a hope and a prayer, but it is identifying a potential, setting up a program and going after that potential as a major initiative.

Mr. Lind: Again, that comes back to a cost-benefit package. The other thing we may be missing on a little bit here is that we can save on the super-efficient appliances. It depends on the cost of the appliance, on how many people in the public are going to buy it.

Second, there is a difference between the consumption of energy and the peak demand. The peak demand is at certain times of the day. This is another thing we are concerned with.

Mr. Charlton: That is one of the reasons we are looking so seriously at appliances because they are one of the things that contribute significantly to the daily peak.

Mr. Lind: That is right.

Mr. Charlton: Let me add one little piece to that last question I asked. If we can come up with a program approach in conservation that is realistic as an alternative to public sector investment in new generation, would you be prepared to sit down, analyse it and satisfy your concerns that we and Hydro are not going to cut the economic throats of Ontario?

Mr. Gillespie: I think we would be very interested in understanding that. It is clear that we are not being very responsive to your questions, which are very broad and of a fundamental nature. When you describe public

initiatives, it is not clear to me at least exactly what they might be and the benefits that might come from doing something on appliances. We have already done quite a bit. I am sure you know that when you buy appliances they have an Energuide label on them.

Mr. Charlton: Which will very soon disappear because the program has been cut federally.

Mr. Gillespie: One of the things we find, and that is why I am not sure about this centralized initiative, is that ultimately people do what they want to do.

Mr. Charlton: Again, that avoids the question I raised on standards. You are right. If efficiency adds a cost to an appliance and if one sees in a store an efficient appliance that is more expensive and an inefficient appliance that is less expensive, then a lot of consumers are going to buy the inefficient appliance. On the other hand, if there is a standard set in the public sector for a minimum efficiency, then the most inefficient appliances are not going to be there for that consumer choice. So standards can lessen substantially the vagary of who will buy the efficient and who will not.

Mr. Gillespie: Yes. The ultimate application or implementation of programs of that type are not clear as to what they might be. It seems in our society, thank God, we have a lot of people who do not like to be told exactly what to do and what the standards are going to be. They are back to buying big cars. I am not sure the most expensive Mercedes is the most efficient car, but everybody would like to have one. As one citizen, I sure as hell do not want to be told when to put out my lights or when to boil my kettle.

The degree to which these national initiatives might be implemented or what form they might take is not clear. Certainly, if such a thing was contemplated and implemented by the government in power, then we would want to look at our projections again.

Mr. Charlton: Obviously, you do not want to be told when to boil your kettle. On any given day you may choose to boil it at the worst time. On the other hand, if we were to say to you that if, instead of boiling your kettle at 5 p.m., you boiled it at 7:30 p.m. you would get a cheaper rate, you would at least think about that.

Mr. Lind: As has been stated, we would welcome any initiative that does come about to save energy. Our concern, and the reason we are here today, is to make sure there is enough energy for this province to keep surviving.

Mr. Charlton: That is the task we see as well.

Mr. Lind: We are projecting a certain load growth as we see it. Whatever conservation comes up, however large or small, as long as there is enough energy for this province to keep surviving and keep growing, that is our main concern.

Mr. Charlton: I hope the direction this committee will take in its discussions with Ontario Hydro will be to study the options thoroughly and to be able to provide facts before we jump off the bridge. Therefore, we hope you will have some substantial facts to look at before we embark in the wrong direction.

Mr. McGuigan: Mr. Gillespie, I am with you on not relying much on

predictions and projections. I point out that in the graph you showed, you are simply projecting that if present trends continue we are going to arrive at a certain place. Other people make these complicated models and they predict whereas you are projecting.

Mr. Gillespie: That is correct.

Mr. McGuigan: I do not believe in either of them very much. Coming from agriculture, I look at the predictions and projections by bankers, farm economists and everybody that we needed all this food. Farmers geared up for it and today they are bankrupt. The reason they are bankrupt is that all the people who were making the predictions forgot to look out the window and see what was happening out in the field. An explosion of production was happening out in the field. The engineering and agricultural religious missionaries we sent all over the world were quietly gearing up the rest of the world to produce its own food, which it now is doing. All those predictions have been absolutely wrong.

I am interested more in what is going on out in the field. You have not told us much about that. Some people mention robotics. Can you expand on what is happening in the field of manufacturing in Ontario and the influence it is liable to have on the demand for electricity?

Mr. Lind: We are looking for growth in the province. We have been through a recession. As the chart shows and as everybody knows, there was quite a lag in the early 1980s. I think things are coming back and we are looking forward in our industry to a three per cent growth over the next number of years on a steady climb. As you know, the industrial cycle is cyclical. It runs about a four-year or five-year term on an increase and then it levels off or declines a little and then climbs again using that as a new base. As far as our industry goes--I cannot speak for the mining or the pulp and paper industry--it seems to be on a curve as well.

Mr. McGuigan: What about the use of electricity versus other fuels, especially with the downturn in petroleum prices that will probably persist for some time? Can we not expect some of the big power users to switch to these other power sources rather than continue with electricity?

Mr. Lind: I think every industry looks for the cheapest product it can utilize in its process, but in some cases they cannot switch. Pulp and paper, as I mentioned, is getting out of chemicals for the manufacture of pulp and into thermomechanical activity. That is going to consume a fair amount. They are buying a great amount of power, but they are getting rid of the environmental problems of disposing of waste chemicals. This process is going to continue in other industries that have changed from one source of energy to another. I cannot predict, sitting here, what is going to happen.

Mr. McGuigan: Does the introduction of robotics mean more power or less power will be consumed, particularly in the automobile industry?

Mr. Lounsbury: More power.

11:20 a.m.

Mr. Lind: There is more electrical energy in the robotics, because you are replacing a man with an electrical machine.

Mr. McGuigan: The efficiency gains per unit would still mean you would have a bigger electrical component.

Mr. Lind: I do not know about the manufacturing cost, but the electrical energy consumption in producing a car is going to increase. I do not know the economics in the automotive industry.

Mr. Lounsbury: I can talk about one car manufactured in Ontario. Production over the past five years has gone up 31 per cent and electricity consumption in kilowatt-hours has gone up 92 per cent.

Mr. McGuigan: That is the kind of thing that is significant. Are there other instances you can tell me about?

Mr. Gillespie: I am no expert, but this is my observation for the really heavy power users, many of which are related to resource industries such as pulp and paper, cement and steel. The trend in steel is moving more towards than away from electric furnaces. In pulp and paper, as someone has already mentioned, up front you have to take all the wood fibre and get it into a squishy mess. They used to do it with chemicals and now they are doing it with a mechanical process that literally chews it up, and that takes electric motors. The petrochemical industries are moving more towards, rather than away from the use of electricity. Even the guys who are pumping the gas across the country--we do not like to talk about gas--are moving away from burning their gas. We supply them with both types of turbines. We used to supply them with turbines that used the gas from the pipe to make it go around and do the pumping.

Mr. McGuigan: Twenty-five per cent of the gas was to bring it across the country.

Mr. Gillespie: Now we are providing them with large electric motors to drive the compressors to push it across because it is more effective and less expensive. On that broad basis, I think the movement is more towards than away from electrical.

One has to speculate as to what those industries are going to do in the future. If you want to have a doomsday forecast, you can say Canada is going to be in a hell of a problem because everybody can do these things around the world for less, or you can say the way we are going to maintain our situation is to be efficient. If you are going to do that, you had better make sure that when they throw the switch the power comes on.

Mr. McGuigan: Just as an observation, if doomsday comes, I guess it will not matter whether we have 25 per cent excess power or 100 per cent excess power; we will be down the tube anyway.

It will probably be in the interest of the people you represent that we have surplus power that can be bought on an interruptible basis; in other words, subsidized power to some extent. As a farmer, I am not thinking about subsidization. Can you tell us what role those subsidized industries play in the total in Ontario? Where do they fit into the industrial picture?

Mr. Lounsbury: In our total consumption of interruptible?

Mr. McGuigan: How important are they? For instance, if they left us and went to some other jurisdiction, what harm would that be to Ontario?

Mr. Lind: Most of the large power consumers are for our basic industries--mining, steel, cement, pulp and paper.

Mr. McGuigan: Do they buy interruptible power?

Mr. Lind: They all buy interruptible power. They buy firm and interruptible for the equipment they can interrupt. If it is not going to affect their process that much for a short interruption, they will buy it. They weigh the odds, so you can make your own judgement. If the pulp and paper industry decides it cannot afford the higher rates and moves out, you can come up with your own numbers of what that is going to do to the economy of Ontario.

Mr. McGuigan: They would take the interruptible power and average it through their power costs.

Mr. Lind: Yes.

Mr. McGuigan: Are there people who exist simply because of subsidized or interruptable power?

Mr. Lind: No. The interruptable power is only available to large users and the large users are primary industry or the automotive industry. That is the type of industry you do not pick up and move overnight.

Mr. McGuigan: By and large, the price is really averaged into their power costs.

Mr. Lind: That price is established by Ontario Hydro. It saves them building a new plant if everybody is buying firm power.

Mr. McGuigan: The people who require really cheap power, such as those smelting aluminum, are probably somewhere else anyway.

Mr. Lind: I do not think we have any aluminum smelters.

Mr. McGuigan: I was just trying to come up with some industry, whether or not it exists in Ontario--

Mr. Lind: Do you mean one that is here for a free ride?

Mr. McGuigan: Yes.

Mr. Lind: I do not think so.

Mr. Chairman: Now, a very patient Mr. Ashe.

Mr. Ashe: I will be brief as we are running late.

My questions are really directed to the Association of Major Power Consumers in Ontario. It seems to me it is the group represented that would be most affected in the event these projections are wrong, one way or the other. If there is a shortage of power, as 20 per cent of the consumer group you are the most affected. If there is too much power, you are going to pay the most for that excess. You have the most to lose by an error either way.

I was a little concerned in the earlier discussion with the reference to the fact that companies may be looking elsewhere for expansion purposes. I appreciate that was clarified somewhat and put more into the context of a

climate. Can I just clarify this? Nobody may know the answer to this. We have had a lot of discussion of interruptable power and how important it is, particularly to basic industries. Does anyone have any idea of how much of the 20 per cent is bought on the basis of interruptable power? Is it half of it or a quarter of it?

Mr. Lounsbury: It is about eight per cent.

Mr. Ashe: Is it about eight per cent of the 20 per cent or two-fifths of the 20?

Mr. Lounsbury: it is eight per cent of our consumption.

Mr. Ashe: Ninety-two per cent of the 20 per cent is firm. It is a relatively small total picture vis-à-vis the Ontario need.

Mr. Lounsbury: Yes.

Mr. Ashe: I think that is important because the impression was coming out, even to me, that it was a significant percentage of the 20 per cent that was interruptable.

Mr. Lounsbury: No.

Mr. Ashe: It is very small.

One of the things we have seen a lot of in the past few days has been alluded to more in the area of conservation and all the super-efficient appliances and bulbs, etc., but we have had a lot of disagreement as to potential in cogeneration. It seems to me that if there is any significant cogeneration potential, it is most likely that a significant part of that total is going to come from the 20 per cent. What does AMPCO see as a responsible, reasonable financial potential of growth of cogeneration in the near future?

Mr. Lounsbury: I believe Ontario Hydro identified 1,000 megawatts as reasonably assured. I personally think it is attainable, with a struggle.

Mr. Ashe: Is it?

Mr. Lounsbury: It is attainable.

Mr. Ashe: Do you have any feel for how much of that 1,000-megawatt potential is in the AMPCO group?

Mr. Lounsbury: I am talking of AMPCO.

Mr. Ashe: Just AMPCO. You feel that 1,000 megawatts would come from the big consumers.

Mr. Lounsbury: Yes.

Mr. Ashe: I will leave it at that so that we can proceed.

Mr. Chairman: Thank you, Mr. Ashe. Thank you, gentlemen.

11:30 a.m.

Mr. Ashe: Mr. Armour, you should have had more work to do over there.

Mr. Chairman: I thought he did very well.

We will go now to joint industry panel number two. This panel will deal more directly with a comparison of the options in meeting the base load.

BOB DONOVAN, DON LAWSON, JOHN GARDINER, DR. NORMAN ASPIN

Mr. Donovan: I would like to begin by introducing myself and members of the panel. My name is Bob Donovan. I am the president of Babcock and Wilcox Canada. My company manufactures steam-generating equipment for both nuclear and fossil power plants. Primarily, though, our throughput is fossil.

On my right is Don Lawson. Don is president of Candu operations for Atomic Energy of Canada Ltd. As the federal agency responsible for our Candu technology, you are probably all familiar with AECL's activities. On my left is John Gardiner, executive vice-president for Canadian operations of Acres International Ltd. Acres is a leading Canadian consulting engineering company. Its primary area of expertise is in energy projects and within that area of expertise, particularly in the area of hydraulic projects.

Before we begin our presentation, which will concentrate on base load within Ontario and the needs for base-load generation, I would like to turn the floor over to Don Lawson for a moment. Don has some additional comments on the letter from the Ministry of Industry, Trade and Technology that was referenced by the previous panel.

Mr. Lawson: We would like to support fully the comments that were made there and in addition, shown on the screen now, are the additional points that are relevant to nuclear. In addition to those points, I would like to make some points on the market outside Ontario and the method of implementing the program in that market.

Any discussion we see on the future of nuclear power, whether it is regional, domestic, national or international, has to take account of the benefits that have been derived from nuclear energy up to the present time and those that will accrue in the future, from what has already been committed and possible future commitments. The benefits to date have been very significant and have already been presented to your committee by various witnesses.

Ontario, where Candu originated and has been developed, has had a major share of these benefits, whether we measure them in terms of the economic, environmental, industrial or social use. To lose the nuclear option would be tantamount to denying these benefits and lack of sustained support will not only lose the future benefits, but will possibly lead to the elimination of the option itself.

Looking at the market, in recent years there has been a negligible nuclear market worldwide, but a resurgence is predicted in the 1990s. Forecasts have been made by various agencies and we have listed the agencies: the International Atomic Energy Agency, an east-west think tank; the International Institute of Applied System Analysis in Vienna; and the World Energy Conference. They have a range of forecasts of the nuclear market up to the year 2000 that ranges from just under 600,000 megawatts to just under 900,000 megawatts.

At AECL, we have looked in detail at these markets around the world

where people have thought they were going to have programs and we have come up with our own assessment, which is slightly more conservative than those from the other agencies. From that assessment, we have deducted the orders and plants that are already in operation, leading to a list of potential new plants of somewhere between 127,000 and 340,000 megawatts up to the year 2000. This is roughly somewhere in the order of 100 to 400 nuclear plants in that period.

Candu's current share of that world market is roughly five per cent and a valuation of the potential market to the end of the century shows that Canada, if you exclude any potential work in Ontario Hydro and the uranium orders, could obtain a total nuclear plant volume of somewhere between \$1 billion and \$2 billion per year.

More than 60 per cent of that market is likely to be in Ontario factories and service industries and the size of the total business, both for Canada and the percentage of that business that will come into Ontario, will be influenced by the support for the nuclear program in this province. Our potential purchasers of Candu look to this province for leadership and lack of a visible commitment to nuclear power, combined with the present small share of the world market and that hiatus in orders, would increase Canada's vulnerability in responding to the market when nuclear trade eventually gets restored to the predicted levels in a few years time.

During this period of low activity, it is a very good opportunity to try and get our house in order. We are taking steps to try to rationalize and strengthen our relationship with the rest of the nuclear industry so we can approach that market with some confidence. To achieve this, we need to be able to call on the experience and expertise of all the sectors of the Canadian nuclear industry in a consistent, focused and organized way.

Atomic Energy of Canada Ltd. has a mandate to explore ways of providing a more effective and efficient organization, improved product and a better delivery process with Ontario Hydro and others in the industry. Organization streamlining is a difficult thing to achieve and the creation of any new entity can be effective only if it has support from the different levels of government. Two key factors that we have in our strategy to remain competitive are to reduce the capital costs and to reduce the total project lead time.

Based on operating experience here in Ontario and elsewhere, we are continually working to improve Candu. Recently, we have restructured our research and development efforts to focus on cost reduction and to improve the total product. Close collaboration with other Canadian manufacturers has led to a significant reduction in component delivery time. In fact, what we are getting now is quoted costs that have increased by less than inflation.

As a result of these initiatives, we are now offering Candus in the international market. We submitted one bid to Korea last week that will bring down the cost of electricity by more than 15 per cent relative to that from the designs of plants now in operation. The competitors are also improving their products but we are confident that we can maintain the lead that our past performance has already consolidated.

We have also been looking with some success at the time frame lead time in building these projects. We have been working with environmental approval and the approval of the regulatory agencies, particularly in the safety area, at being able to reduce those lead times. Our experience in projects outside Ontario has shown that lead time can be achieved in something like two years.

Also, we have already actually achieved construction periods of five years for single units and in collaboration with the private sector companies that have international project and construction experience, we are looking to reduce the construction periods to less than five years. Therefore, we believe that an overall schedule for a single unit from initial planning to in-service--I am talking about the plant itself, not the transmission--can be reduced to something like seven years or less.

11:40 a.m.

Mr. Donovan: There is one oversight I should rectify. I forgot to mention that our slide projector operator is Norman Aspin. When he is not working as a slide projector operator, Norm is president of the Canadian Nuclear Association.

As I mentioned earlier, our presentation is going to concentrate on base load forecasts. Traditionally, Hydro has used some of the hydraulic generation on the St. Lawrence and Niagara hydraulic plants and nuclear stations to meet its base load. Coal has been used for intermediate loads and the bulk of the hydraulic capacity has been used for load following and to meet daily system peaks.

This first figure--I expect you have seen it before--is from Ontario Hydro's September 1985 presentation to this committee. It indicates that base load generation is approximately 50 per cent of the system's peak demand. That is the percentage we are going to use in our subsequent calculations and in our projection of base load requirements.

There are some demand management schemes possible that could take some of that peak and put it down into the base load. If that were to happen, it would only tend to make our projections more conservative. Stated differently, what we have been presenting here would understate, as opposed to overstate, our base load generation requirements.

We calculated what we believed Hydro's base load requirements would be, on the basis of the three load growth scenarios they have examined--the 0.7 per cent, the 2.5 per cent and the 4.3 percent. All we have done is we have taken the 1985 peak, 20.5 gigawatts, multiplied it by 1.25 to get our 25 per cent reserve capacity, multiplied that by 0.5 to get the base load and escalated it at 0.7 per cent per year to 2000. That gives us a year 2000 requirement of approximately 14 gigawatts in the 0.7 per cent case, 18.5 gigawatts in the 2.5 per cent case and 24.5 gigawatts in the 4.3 per cent case. Note that we have indicated Hydro's current total of what it has existing, plus what it has committed in the hydraulic and nuclear, which have traditionally been their base load sources.

Mr. Sargent: Sorry. What is this for? Are you going to try to sell us another plant? What are we talking about?

Mr. Donovan: I am going show you that we believe the base load requirements Hydro is projecting are inadequate.

Mr. Sargent: On what? Base load requirements on what? On the current plants we have?

Mr. Donovan: Current existing, plus those they have committed, are certainly inadequate to get us to 2000. We will in this presentation

demonstrate to you two things. One is that Darlington units 3 and 4 are required. I believe they should be looking at this point at the next four units at Darlington. I did not say commit them at this time, but I believe that Hydro's projections of their base load requirements over the next 15 years are inadequate.

Mr. Sargent: Are you changing the game plan for Darlington?

Mr. Chairman: No, no. Mr. Sargent, let us let them finish their presentation before we get argumentative. Please. Thank you.

Mr. Donovan: If you look at their total existing and committed base load capacity, it comes to about 15.5 gigawatts, enough to meet the low growth scenario but not enough to meet the 18.5 gigawatts required in what Hydro has characterized as the most probable growth scenario. They can meet the 0.7 per cent case. In the 2.5 per cent case, their current existing plus committed capacity is on the order of 2.9 gigawatts low. In the 4.3 per cent case, it is on the order of 8.4 gigawatts low.

There are a lot of ways one could go about meeting shortfalls such as this. Whether it is zero or 8.4 gigawatts, there are a lot of options available. There are several points I should make about what we believe are the most likely ways those shortfalls would be met. The relative attractiveness of each of the five options that have shown; the purchases, the coal, the nuclear, the conservation and the hydraulic; we are going to address separately, myself and my colleagues. We will go through each of those and give you some assessment in a format similar, in our opinion, to what your consultants did for you about how attractive we think each of those options will be.

I should also point out the question marks. A number of these figures are somewhat subjective. We will be addressing some of them a little bit later on. They all either come from or are derived from figures and facts already presented to this committee. To cite an example, for nuclear the 1.7 gigawatts are arrived at by taking Ontario Hydro's testimony to the effect that they could get two more Darlington-sized units on line by 2000. According to the information that Don Lawson gave, we believe that more than two units could be brought on line by 2000. We have continued to use the data previously presented, but a lot of these figures are somewhat subjective in nature.

Another feature on this slide I should point to are the asterisks. We have chosen to call these indigenous resources. We will be discussing this a little bit more in a moment. We are calling them that because the bulk of the economic impact associated with those alternatives, the economic benefit, would fall to Ontario. Purchases, as we see it, create an unfavourable balance of payments for the province and send jobs outside the province.

The coal stations would be manufactured in Ontario and the construction jobs associated with those stations would fall in Ontario. That benefit would accrue to Ontario, but the big job generator associated with coal plants is the mining of the coal. In all probability, that would have to come from outside the province, whereas the economic benefits associated with the nuclear, conservation and hydraulic options would primarily accrue to this province.

As we look at base load generation, we see that the indigenous options are insufficient to meet even what Ontario Hydro calls its most probable load

growth case. If you recall, the most probable case led to a shortfall of about 2.9 gigawatts. Our indigenous resources will give us about 2.1 gigawatts.

Furthermore, to meet the high-load-growth case Hydro is looking at, which resulted in the 8.5-gigawatt shortfall, all those options would have to be implemented. Some of them are not awfully desirable. In particular, the purchases, the coal and some of the others are quite unattractive for this province. Perhaps a good way to continue the discussion at this point would be to profile each of these five options and to take a look at how we assess their attractiveness to Ontario.

11:50 a.m.

The first one is coal. From a cost point of view, on Hydro's system and based on Hydro's experience, coal is not their most cost-effective source of power generation. By and large, nuclear and hydraulic beat coal. On the other hand, coal is better than some of the really poor options, such as gas turbines, which happily, we have not had to rely on too heavily in this province. We have rated it good. Reliability and security are both rated as good. The generating unit would be here in the province. The coal would come from outside the province but in all probability from within Canada. We believe the operating record of coal plants is fairly good. It is a fairly reliable source of power.

Risk, flexibility and lead time are all good. Certainly with coal-fired plants running in the range of four to six years to get into operation, they are better than some of the alternatives and worse than some of the others. We believe coal falls kind of short in the provincial factors shown below. We believe we would be exporting jobs if we went with coal-fired plants, for the reasons I mentioned earlier. The environmental impact of coal-fired plants from many points of view, including acid rain and others, is not very good. If we had to go out and build new coal-fired plants in this province, we believe the public and political support for coal-fired plants is not very good.

The next of the options we would like to profile is purchases. I am going to ask John Gardiner to address the attractiveness and the profile of purchases for us.

Mr. Gardiner: The purchases we are considering here are those from new hydraulic plants in Manitoba or Quebec, essentially the potential second phase of the Baie-James project, and the associated long-distance, high-voltage transmission systems that are required for the delivery of power to Ontario.

We have rated costs as good based on Hydro's current information. It may be noted in this regard that it was reported to this committee that the cost of power from Hydro Quebec's Baie-James project, that is the existing one to their grid, in 1984 was 2.8 cents per kilowatt-hour, which compares with Ontario Hydro's nuclear energy costs to the Ontario grid of 2.2 cents a kilowatt-hour. We consider it unlikely that this differential could be improved with the construction of new plants in Quebec yet to be built. On this basis we have rated the cost as good.

We have not rated reliability and security of supply at the excellent level that hydraulic resources might normally obtain, but recognizing the transmission line reliability and security over those long distances, we have rated that at the good level. Again, with risk, flexibility and lead time, the

main aspect that would take it down from the higher realms is the flexibility to the province related to long-term commitments on power contracts.

With regard to the provincial factor, the impact on the economy has been assessed at the lower end of the scale, largely reflecting the loss of construction employment at the generating plants built outside of the province. Environmental impacts in Ontario are mainly associated with the long high-voltage transmission lines, and our assessment of good reflects this.

The high assessment in the area of political-public support has been tempered by our views on the impact on the economic activity and the loss of employment in Ontario as a result of construction outside the province. That in essence is our assessment of the purchase profile.

Mr. Donovan: The next profile is nuclear, and I ask Don Lawson to profile the nuclear.

Mr. Lawson: The cost benefits of nuclear power have already been well established in Ontario where the direct comparison is with coal. Similar cost advantages have been seen and have come to pass in both New Brunswick and in Korea, where the Candu not only is outperforming the coal and oil alternatives but is also outperforming the competitors' pressurized water reactor units of comparable size. Our ongoing efforts to look at product improvement and cost reduction, as I mentioned earlier, will ensure that these costs can reduce in real terms.

In terms of reliability and security, Candu's performance with six reactors in the top 10 of the world's list of lifetime capacity is testimony to the reliability of the system. This outstanding performance and the security from plentiful indigenous supplies of inexpensive natural uranium provide an excellent rating for reliability and security.

Mr. Sargent: That is a crock.

Mr. Lawson: In terms of risk, flexibility and lead time, I have already mentioned there are strong reasons to believe that lead time for nuclear units can be significantly reduced. This, in turn, reduces the interest costs.

Candu has also shown itself to be a flexible system. Its alleged inability to load-follow is unfounded. Not only is Candu reliable in a stable system, such as here in Ontario, but it has also been performing well in grids that are less stable and have large variations in loading. In Cordoba, Argentina, where grid limitations on the plant stop the distribution of some power, the reactor has been effectively load-following for much of its life to date, with very satisfactory results.

The organizational changes we envisaged will harness all the best skills available, and in our view this is by far the best way of minimizing any risks to the program.

In terms of economy, the nuclear industry in Canada provides something of the order of 30,000 jobs, many of them in the high-technology sector and most of them in Ontario. The total industry's annual contribution to the economy, including all the other aspects mentioned, is more than \$3 billion. This puts it in the same league as chemicals, automobiles, communications equipment, metal refining and smelting. Using uranium rather than coal has

already saved Ontario more than \$5 billion in foreign exchange, and by the year 2000 the accumulated benefits will be of the order of \$15 billion.

In terms of the environmental impact, nuclear power's beneficial impact on the environment is significant. The example of the reduction in emissions compared with coal-fired power plants is well known. Nuclear plants are safe and have emissions that are well within the regulatory limits.

In terms of political and public support, one cannot claim universal political enthusiasm or public enthusiasm for nuclear power, but it is fair to say that since its inception the Canadian nuclear program has received vocal support from political leaders.

Contrary to reports that suggest half of the Canadian public is opposed to nuclear power, surveys we have conducted indicate that only slightly more than 50 per cent of Canadians have made up their minds on the issue, and those are evenly divided between both support and opposition; 17 per cent of the population is absolutely opposed to nuclear power. In Ontario, 33 per cent are in favour and 21 per cent are absolutely opposed. Those are figures from surveys done last year. It is on that basis that we believe the profile assessment in that category should be good.

Mr. Sargent: If it is that good, why can you not sell some? You cannot sell any now.

Mr. Lawson: In the world market there were no orders last year except to their own manufacturers in France and in Japan. The only letters of intent that came out were for Turkey, which we obtained. The previous year was the same. If you look at the pattern, there have been very few orders, and we have been fairly successful in the orders that have been available; for example, our orders in Romania.

Mr. Brandt: Is it not also fair to say that the political realities in some countries have made it virtually impossible for Candu to be an exportable item? I speak specifically of a country I visited not all that long ago, namely, Taiwan. They would have been most anxious to put two, three or more Candus in that country, but we lost that business to the United States as a result, right or wrong, of political realities.

Mr. Lawson: There is some truth in that. We have to get the formal agreement before exporting nuclear products, and there are some countries where that approval is not forthcoming.

In the situation in Taiwan, they had not invited us to bid on their last round; in fact, they had awarded letters of intent to an American company for their next nuclear power plant. When their program starts again, they will probably start that process again before we will have an opportunity to get in there.

We are in a situation where there are restraints such as that. We look at the opportunity and see what case we can make. If we think there is a good opportunity and the objections are not strong and may be influenced by the prospects, we will take that case forward.

12 noon

Mr. Brandt: Would the federal government prohibit you from selling a nuclear reactor to Taiwan? Could you sell one, if they encouraged you to make a bid?

Mr. Lawson: I do not think I can talk for the agreement, approval or otherwise of the federal government. As you have described, there is a position there at present, and I am not in a position to comment on their future judgement on that.

It is a requirement that these do get permit approval for the selling of these power plants. We would have to go through that process.

Mr. Chairman: Have you completed, Mr. Lawson?

Mr. Lawson: Yes.

Mr. Donovan: I would like to profile the next of the options we had listed on our previous slide, namely, conservation.

In the cost area, we have rated conservation as good. Ontario Hydro's figures range from poor to excellent for what it would cost to implement various conservation measures; we have rated it as good.

Reliability and security are generally pretty good; in fact, in some areas they are excellent. To the extent that conservation measures are implemented through capital expenditures that are made, such as in upgrading motors, improving insulation and that kind of thing, reliability is excellent. To the extent that conservation measures depend on people's attitudes and behaviour, reliability is perhaps not so good.

We could look, for example, at the response of the public on gas-guzzling automobiles. Once the perception that there is a problem starts to fade, they seem to revert to their old behaviour, notwithstanding the fact that even at today's gasoline prices, it is clearly cheaper to buy and operate a more fuel-efficient car.

To the extent that we are relying on public attitudes for conservation, perhaps the security of that source is not as good. Overall, however, one would have to rate conservation as good on reliability and security.

Lead time on conservation ranges from fair to excellent. Certain things you can do immediately, although as Ontario Hydro pointed out in its testimony, certain activities, programs and behaviour modification things that have to be done could take as much as five to 10 years to get in place.

Flexibility: To the extent that you are relying on conservation that does not come to pass, you have in some ways degraded your flexibility with regard to what options you can chose.

Overall, on lead time and risk flexibility, we have to rate conservation as good also.

On the provincial factors, on both the economy and political and public support, we would have to rate conservation as excellent. The only qualification I put on public support is that public support of conservation is excellent in a general sense, but given the degree to which dependence on electrical energy and the conveniences associated with it permeate our day-to-day lives, I believe public support would erode rather rapidly if the conservation measures we were espousing or trying to put in place significantly affected people's lifestyles.

With that one qualification, we would rate conservation as excellent, both on the economy and on public support.

Environmental impact: I suppose the initial reaction would be to say that conservation is super with regard to environmental impact; if you do not generate the energy, there is no impact on the environment. On the other hand, to the extent that we either overseal our houses, as has been done in some areas, or use technologies or materials we do not thoroughly understand and think we do, such as urea formaldehyde, or people start utilizing wood as has been done in some areas to heat homes to avoid electric energy consumption with resultant adverse impacts on air pollution, woodlots and so on, the environmental impact of conservation is not necessary totally benign, but it is at least good and maybe arguably excellent.

Mr. Snell: On that one point, you say that using technologies we do not understand might rate conservation as negative; what about the technologies we do not understand regarding disposal of spent fuel? If that logic applied to nuclear, why would we rate environmental impact as excellent?

Mr. Donovan: I will turn that one over to Don Lawson to answer. Before I give him a chance, however, I want to say I believe the technology associated with processing and disposing of nuclear fuel is well understood. What we do not have in hand is the political process.

Mr. Snell: I see.

Mr. Sargent: Understood by whom?

Mr. Donovan: By the people working in the field. I do not know that the public is generally--

Mr. Sargent: Who is working in the field? AECB?

Mr. Lawson: At the last session, we touched quite a bit on the waste issue. We did offer an invitation to your committee to visit the facilities at Whiteshell, which is doing all the work on waste management, and have an in-depth presentation of the technical aspects of the program. Regarding the technical aspects, I endorse what Mr. Donovan has said.

Mr. Sargent: Why can you not clean up the mess at Douglas Point right now? There is a hell of a mess there.

Mr. Lawson: I do not accept that.

Mr. Sargent: We had the boss man from AECB here, and he did not know what he was talking about.

Mr. Chairman: Let us wait until the presentation is completed, Mr. Sargent. I have been fairly liberal with you since it is your birthday.

Mr. Ashe: Too liberal.

Mr. Chairman: Perhaps too liberal at times.

Mr. Sargent: Get them back on track.

Mr. Chairman: Mr. Donovan, I think you should take us back on track.

Mr. Donovan: Thank you. I will try to do that. At this point I will turn the discussions over to Mr. Gardiner, who will profile hydraulic for us.

Mr. Gardiner: Which is Ontario's traditional energy resource and currently provides about one third of Ontario Hydro's electrical generation.

First, the remaining hydraulic potential in the province is generally at less favourable sites than those that are being developed. Hydraulic generation in general is characterized by high capital costs but low operating costs and a long service life. In this regard we have rated the weighting as good because these costs can vary from excellent to, in some cases, quite poor. We may be a little low in that rating; nevertheless, that is where it is.

In terms of liability and security, impact on the economy and general public support, we have assessed those as excellent, although we recognize there is opposition and some concerns in local situations.

With regard to risk flexibility and lead time, and lead time in particular, a hydraulic project is good and is not likely to be significantly less than Don Lawson's improved schedule for a single nuclear unit. We normally estimate about seven years on that.

In terms of environmental impact, the range is from excellent to not so good and is very site-specific; we have therefore given a weighted assessment of good under that category.

I might add that while the hydraulic option has been given a generally high assessment, the potential economic sites remaining in Ontario have generally low energy generation compared to capacity installed; that is, a low energy content.

As was indicated earlier, this hydraulic generation would make only a small contribution to meet base load requirements, which we are dealing with to a degree at the moment. However, the hydraulic generation is well suited for the peaking and intermediate load generation, which is also an important part of future planning.

12:10 p.m.

Mr. Donovan: What I would like to do is summarize these profiles you have just seen in a format similar to what your consultants did for you previously. Before I draw conclusions from this slide, let me point out one or two gross observations with respect to it.

First, as far as the alternatives go, it is the assessment of this panel that nuclear, hydraulic and conservation are clearly more attractive; there is an obvious break-point relative to purchases and coal. I do not believe it matters too much whether one quibbles over one or two of the ratings and exactly where some of those Xs should be. Whether it is nuclear 9 or 10, hydraulic 8 or 9, conservation 10 or 9 or whatever, the point is that those three are the relatively attractive ways to go, and we believe coal and purchases are the less attractive ways to go.

The basic problem with conservation and hydraulic is that we believe there is limited potential capacity there. The two most attractive are hydraulic and nuclear; those are the best options. I could throw conservation in there also, to the extent that it is available. The hydraulic contribution is limited by the number of sites available within Ontario. Similarly, we believe conservation is fairly limited.

The nuclear contribution is essentially unlimited in terms of capacity. The only thing we have to do is look far enough ahead; there is sort of a lead time requirement there. We have to be able to look and plan far enough ahead to do a good job of managing our business; but the nuclear contribution is essentially unlimited.

In summary, we would make these points.

We urge the select committee to recognize the dangers inherent in placing too much confidence in unproven technologies for which we do not have a good database from which to make extrapolations and draw conclusions or for which we just do not have the infrastructure in place to implement those technologies.

We point out that the province has well-tested and successful alternative technologies in its indigenous supply. We believe those are by far the best options for this province in meeting its base load requirements.

Finally, we believe planning for base load requirements for the period to the year 2000 must be addressed now because if you wait too long, you continue to lose or pre-empt certain options you would have if you planned ahead and planned for your base load requirements.

That summarizes and completes our comments. Before any questions, I want to say on behalf of myself and the other members of the panel that we appreciate this opportunity to meet with you today and express our views on these subjects. Thank you for that opportunity.

Mr. Chairman: Thank you, Mr. Donovan. I am sure that should provoke some thoughtful questions.

Mrs. Grier: I apologize for missing the beginning of your presentation. Perhaps you shared with the committee whether your conclusions are based on statistics, analysis and costs that you can share with us or whether they are essentially conclusions based on your experience and more subjective analysis.

Mr. Donovan: Our conclusions fall into several categories. If you look at the early part of our presentation, with the statistics, the numbers and the projection of load growth, that is all based on data that has been presented previously to this committee.

Mrs. Grier: Independent data or Hydro data?

Mr. Donovan: It is a combination of both. I am not sure when you came back in--

Mrs. Grier: I have read your slide presentation.

Mr. Donovan: You see the Xs on the profiles. While we tried to make the basis for that as quantitative as possible, where one puts some of those Xs is somewhat subjective in nature and is a matter of opinion. Even within our own panel, we had some interesting discussions over where some of those Xs should go.

Mrs. Grier: In your summary, you urge us to recognize the dangers of placing confidence in unproven technologies. If we do not establish a database and provide ourselves with a basis for comparison among the various options,

how are we ever going to know whether these technologies are good, bad or indifferent?

Mr. Donovan: If I were planning for the province's base load requirement, I would proceed as follows: First, I would make very sure that I had in my plan adequate lead time to implement the nuclear, hydraulic or coal--however I was going to make that base load requirement--if some of these alternatives did not work out.

I would not count on conservation; on the other hand, I would not count it out. I would try some of these programs and get them in place. I would see how time-of-day pricing works. Hydro has already testified that in the course of about a year of testing on time-of-day pricing, there has been some favourable feedback and some encouraging results.

Those alternatives need to be tested and tried. My only point is that I do not think we should be proceeding three, four or five years down the pipe assuming that some of these things are going to work out based on somebody's experience in San Francisco or some place; then all of a sudden we find out they do not work.

Mrs. Grier: You said in reply to Mr. Sargent's question that the technologies for disposal of nuclear byproducts were in your opinion proven. In terms of long-term disposal you are talking about the Canadian Shield varying within the kind of disposal. Where has that been proven?

Mr. Lawson: It has been proven in the work we have been doing at the Whiteshell nuclear research facility.

Mrs. Grier: But over time it has never been tested. The future consequences are unknown.

Mr. Lawson: In all these activities you have to make predictions of what you expect in the future and test them against various activities, such as the laws of nature. The work that has gone on has been to make predictions, to look at those predictions and to assess the level of safety to see if that is believed to be adequate. As we mentioned previously, this is all in written reports which are available to the public.

Mrs. Grier: How does that kind of process differ from examining experiments in conservation and efficiency in other jurisdictions with similar characteristics to our own and using those data on which to base a conclusion about that option?

Mr. Lawson: Part of that can be done. As Mr. Donovan says, we are not saying that should not be done, but it should not be done on the basis of running out of time and then being able to use some of the other options.

Mr. Sargent: I think your use of the word "proven" is pretty loose. How do you plan to mothball or bury plant, even forgetting about the spent fuel rods and the 35,000 tons of water? How do you plan to get rid of the water and the spent fuel rods and how do you bury plant?

Mr. Lawson: The water is very good. It is very useful and does not deteriorate.

Mr. Sargent: What are you going to use it for?

Mr. Lawson: Candus. It is good heavy water.

Mr. Sargent: In Canada?

Mr. Lawson: Wherever people are buying Candu reactors.

Mr. Sargent: They are not buying Candus. You know that.

Mr. Lawson: We are not bidding on the basis that no one is going to buy.

Mr. Sargent: How are you going to bury plant? It is going to cost \$1 billion to bury Three Mile Island.

Mr. Lawson: Looking at the plant, there is a whole range of different activities of components in a power plant. Obviously, the most active ones are related to the fuel. Fuel waste has been discussed. Then you get the components that have been closest in to the centre of the core that have some intrinsic activity because they have been exposed to high levels. If you leave those for long enough, they will decay down to a level considered acceptable for relatively routine burial underground.

Mr. Sargent: Where are you going to bury it?

Mr. Lawson: In facilities that are ultimately approved for such activity.

Mr. Sargent: Where?

Mr. Lawson: The sites have not yet been chosen.

Mr. Sargent: By the year 1990 or something like that? Your target date is 1999, is it not?

Mr. Lawson: There is a program in place for waste disposal. The activities on plants that are currently closed down, such as the Douglas Point one you referred to, have been put into a safe state where it can then decay. It can decay there for a very long time without--

Mr. Sargent: It will decay in 50,000 years.

Mr. Lawson: No, it is much less than that.

Mr. Sargent: That is the life of it. Did you ever read the books on that stuff?

Mr. Lawson: That is not the life to dismantle a station like Douglas Point.

Mr. Sargent: It is.

Mr. Lawson: It is not.

Mr. Sargent: I will send you some material on it.

Mr. Lawson: I am very well aware of that. There is natural inherent activity. These things do decay down. They are not like some of the poisons, such as arsenic and zinc. Radioactivity does decay with time. It does not take 50,000 years.

12:20 p.m.

Mr. Sargent: What do you call time?

Mr. Lawson: It depends which isotope you are looking at.

Mr. Sargent: You are talking thousands of years.

Mr. Lawson: No, less than that.

Mr. Sargent: Less than thousands of years?

Mr. Lawson: Yes.

Mr. Sargent: All right. It is like a cat starting up a 100-foot pole; not knowing how to get down, he keeps on climbing. He is at the top and if no one rescues him, he is a dead cat. As we build more plants, we climb higher on the nuclear pole. In each case, we assume that in 30 years someone will know how to rescue us. You are putting us in this mess now.

Mr. Lawson: I have not seen many cats up poles.

Mr. Ashe: Can you give us the basis of your quote that you read so well? I am interested.

Mr. Sargent: In Toronto we have the most volatile plant in the world on our doorstep. There are all kinds of alternative power in Quebec and Manitoba. Why do they not have nuclear power in Quebec and Manitoba?

Mr. Lawson: They do have nuclear power in Quebec.

Mr. Sargent: Where?

Mr. Lawson: The Gentilly two-power pump, which is operating very well.

Mr. Brandt: It is at Trois Rivières, is it not?

Mr. Lawson: It is right opposite Trois Rivières.

Mr. Sargent: Why can we not buy power from Quebec and Manitoba?

Mr. Chairman: Mr. Sargent, we are straying.

Mr. Sargent: He has not solved the waste problem yet.

Mr. Chairman: You had a supplementary and it moved on.

Mr. Sargent: Your boss did not know either.

Mr. Chairman: We will go to a very clear and concise question from Mr. Haggerty.

Mr. Haggerty: In your summary you say, "The panel urges the select committee to recognize the dangers inherent in placing undue confidence in unproven technologies." Can you enlighten us on what you are referring to?

Mr. Donovan: In sponsoring or promoting conservation or so-called

alternative technology or soft technology, or any number of solutions that are sometimes promoted for electrical energy generation, I believe a lot of those technologies are either unproved, not well thought through or ill advised. They run the scope from wind power to any number of other technologies that have been promoted.

Mr. Haggerty: But wind power has been successful in California.

Mr. Donovan: It depends who you talk to. A lot of people--

Mr. Haggerty: Witnesses before the committee have indicated that.

Mr. Donovan: Let me give you an alternative impression by those--and I am not one of them because I do not live near them--who are opposed to them. They are dangerous, noisy, uneconomical and environmentally hazardous. The only reason they exist is that those things out there in California at Altamont Pass are not wind farms, but tax farms. They get favourable tax treatment down in the United States.

That tax treatment is being removed and there is a hue and cry among the people who promote these things and who have built a big business around putting little windmills out in Altamont Pass, for all the good they do. They are also not 100 per cent reliable. Obviously, it depends on wind conditions. I would put them right into the category of unproved technology.

Mr. Haggerty: Are you suggesting that the experiment on wind power Ontario Hydro is now carrying out in Hudson Bay or James Bay is a waste of money?

Mr. Donovan: I am not suggesting any such thing. Wind power may have application in certain situations. For example, one can think of remote, isolated areas where only a little block of power is needed, or intermediate or peaking power. Remember, our presentation is aimed at base load. You cannot get base load out of something that only happens to operate when the wind is blowing.

Mr. Haggerty: Witnesses who have appeared before the committee in the past couple of weeks have been stressing conservation. Even Ontario Hydro has stressed that in its discussion papers. You are suggesting that some of the proven technology or guidelines established by government agencies in the United States may not be functioning as well as they should.

Mr. Donovan: I think everyone on this panel strongly supports conservation. If you implement your conservation such in a way that you do not do anything foolish, such as sealing up homes to the point where they are unhealthy, if you avoid such pitfalls, it is hard to argue against conservation. About all that happens with conservation is some people in mining or power generation or some area may lose jobs because we conserve, but we cannot justify profligacy or wastefulness just so people can continue to have jobs in coal mining or some other area. Clearly, conservation is an objective for which the province should be striving.

Sometimes disagreements develop over how much we can expect to get from conservation. I believe that is the fundamental area of uncertainty and risk. As I indicated earlier, to the extent we can get some of these programs in place and they demonstrate their effectiveness and the public accepts them, that is super. We ought to do that.

Mr. Brandt: I am a little concerned about the figure you used earlier in your presentation about the lead time for bringing on new power being in the order of seven years. That is about one third of what they are now estimating it will take for a nuclear facility in the United States. Because of the difficulties that country has had in many areas, it is now looking at 15 to 20 years. Even the most optimistic estimates I have heard in submissions to this committee have been in the order of 10 years.

When one considers the difficulty we have had in developing power lines because of environmental objections, and otherwise getting power out of the Bruce, when one looks at some of the realities of the mid to late 1980s, do you think that estimate is realistic or overly optimistic?

Mr. Donovan: We made some projections of time to bring various plants on stream. Are you talking about nuclear plants specifically?

Mr. Brandt: Yes. I thought you were referring to nuclear.

Mr. Donovan: In that case, I will turn it over to Don.

Mr. Lawson: The comments I made were based on some experiences. Recently, we have gone through the whole environmental approval process in New Brunswick. That process started with a letter dated July 18, 1983, and by June 14, 1985, the process was complete. That was not an easy process either. Because there was an involvement by us as a federal agency and by the local provincial agencies, it had to be a joint environmental exercise between the two jurisdictions which introduced a new involvement in the process. The process took that amount of time.

Regarding the work going ahead for Point Lepreau 2, there is a new approach to the licensing approval by the Atomic Energy Control Board, which is quite separate from Atomic Energy of Canada Ltd. It is a separate regulatory agency. The aim on the part of both parties is to get enough from the licensing arrangement so everyone knows precisely where he stands on nuclear licensing and there are no problems or delays during the construction period. We made the statement on that basis.

For the plant, not the transmission facilities, the time frame of two years is not unreasonable. In terms of construction, we built a plant in five years. Admittedly, it is an overseas plant, but we see no reason why that cannot be repeated in Canada. That is the basis on which we are bidding future plants as well.

12:30 p.m.

Mr. Brandt: I do not doubt a plant can be constructed, but a plant without transmission lines or without the wherewithal to deliver the power is not bringing a plant on stream in the true sense of the words in that seven-year time frame. I am looking at the complete project. I am not being argumentative when I say this. If we look at where we are now, the surplus safety gap we want to develop in Ontario Hydro, the demands of future industrial growth and all the conservation factors added into that equation, we have to look at what would be the shortest time frame in which we could get a plant on stream, recognizing that the longer we leave the decision, the more answers we will have to some of these very difficult questions.

We have looked at a number of presentations about conservation, but you cannot snap your fingers and have conservation in place in a more effective

way within a year or two. There is a long time frame involved in that as well. With the new Environmental Assessment Act we have in Ontario and with an increased knowledge and sometimes an increased level of objection to the construction of these kinds of power lines, as well as the kinds of plants we are talking about, seven years is probably not a realistic time frame. The longer I sit on this committee the more I think the 15-year period looks more realistic.

Mr. Haggerty: They were exempt from the Environmental Assessment Act for Darlington and there are still about 14 years.

Mr. Charlton: You guys would not (inaudible).

Mr. Chairman: Let Mr. Lawson answer the question.

Mr. Lawson: We need to look at how we can speed up the process. To go through a long process is extremely time consuming and cost consuming. I said earlier it was based on a good experience in another province. Instead of a process that is going to take longer and longer--and the United States process is quite different from ours. There is a lot of pressure there to try to get that process down to something like a seven-year time frame. There were papers presented at the last American nuclear forum conference along that same line in which our US competitors were looking at a seven-year time frame.

There is no way you can plan sensibly on a frame of 15 years. We have to ask ourselves why not, instead of assuming that this prediction goes on. What do we have to do to satisfy all the people in two years? Two years is a long time. Why can we not get that approval in two years?

Mr. Brandt: I do not disagree with you. I am dealing with the realities as opposed to what one might like to see happen. I raised the point only because, with the current information we have before us, seven years appears to be overly optimistic. I wanted to make that point and to see what your response was.

Mr. Aspin: Could I make a quick comment on Mr. Brandt's question? It is my understanding that if another plant were built on the Darlington site, additional transmission facilities would not be required. On that basis and on AECL's experience we suggest the seven years is achievable.

Mr. Brandt: I could counter that by saying no one has been able to answer the question yet as to when we will be able to release the energy out of Bruce as another factor in the entire argument. The debate is still raging about which of the various transmission options might be the most acceptable. I accept what you say, sir. It is a valid point.

From everything I have read, and I am not privy to all the depth of material Mr. Sargent has accumulated over the years on this subject--and I would publicly like to wish him a very happy birthday and to thank him for sharing his cookie with all of us on this committee.

Mr. Sargent: I will buy you a drink, Andy.

Mr. Brandt: I will accept that as well.

I believe the nuclear industry in this province--essentially this country when you speak of this province--is probably the most reliable and dependable in the entire world. We are extremely competitive. We have had a

certain reservation that has been brought about through a number of political realities that I touched on earlier about the sales of our product to other countries. Since I do not have this information at hand, could you give me some indication of the sales that have been achieved to date, the number of individual units, the approximate gross value of those units and to which countries they have been sold? Do you have that information at hand?

Mr. Lawson: I do not have it at hand. Going back to the earlier program, the countries we have sold to are India, Pakistan, Argentina, Korea and Rumania, and we have plants running in New Brunswick, Quebec and Ontario. We have dealt directly with those countries and we have made service sales, not Candu sales, in other countries.

At present we have bids in Korea and we are in the process of putting bids into Yugoslavia. In Turkey, we have a letter of intent where we are looking at the financing. We are working with nuclear activities in other countries. We have ongoing activities in Japan and Italy as well. I cannot put a value on the whole lot today because it is dollars that range over a number of years. In order to put it into perspective to understand it, you need to put it into today's dollars.

Mr. Brandt: How many of the top 10 nuclear reactors in the world at present would be Candu in terms of reliability?

Mr. Lawson: Of the top 10 in 1985 I think there were four. The second one was Point Lepreau, the next one was Bruce unit, the Korean unit was sixth and then one of the Pickering units, as I recall. I am going from memory.

Mr. Donovan: The typical range is from four to six going back over a number of years.

Mr. Lawson: I have the figures here. Point Lepreau's capacity factor last year was 97.4. The next Canadian unit was Bruce at 94.9. The fifth was the Korean Wolsung unit at 94.3. The seventh was Pickering Unit 7 at 92.9: four out of the top 10. If I may I should add that in terms of comparison the cost of electricity coming out of the Wolsung unit as quoted by the Korean Electric Co., translated into today's Canadian dollars, was 3.8 cents per kilowatt-hour. The cost from the competing units was 5.5 and 5.2. We are very pleased with that performance, which we hope will stand us in good stead in the bidding situation.

Mr. Sargent: What is your connection with Babcock and Wilcox Canada?

Mr. Lawson: Babcock and Wilcox Canada is one of the suppliers of steam generators and heat exchangers to the Candu nuclear program and has been from the inception of the program.

Mr. Sargent: Why did the Ontario government bail them out when all their boilers went bad one time? It cost us \$5 million to bail out Babcock and Wilcox.

Mr. Donovan: I cannot comment on that, sir.

Mr. Sargent: Why do they still do business with them? They would not pay for their own mistakes.

Mr. Chairman: Mr. Sargent, I draw to your attention that Mr. Donovan is president of Babcock and Wilcox.

Mr. Sargent: I am sorry about that; so is he, I guess.

Mr. Brandt: I think you had better offer him a piece of your cookie, Eddie.

Mr. Chairman: Buy him a drink.

Mr. Brandt: May I pursue one further question, if Mr. Sargent is through with his line of questioning: I want to ask a question regarding the different types of nuclear reactors that are currently in use. Has there been a circumstance where a country has purchased a light water unit, such as Taiwan or other countries that have purchased those kinds of reactors, where they have mixed the supply and gone to the heavy water Candu type? Is it impossible to make a sale into a country once it is committed, because of the interchangeability, or whatever is attractive to them of parts and expertise and those kinds of things? Or are there countries that run more than one type of nuclear power generating design?

Mr. Lawson: Korea runs a light water reactor program from two different vendors. In the orders that are placed today, eight reactors that have been ordered are of the light water type and the one Candu reactor which came as the third in their program. Many countries have mixed the supply of reactors from different vendors and of different types. Some countries say it is appropriate to try and standardize on one so that you get consistency of the technology. If Korea, with its relatively developing technical infrastructure, can cope with two different types, and in the earlier part of the program Italy did that with three different types of reactors, then it is possible to enter markets.

12:40 p.m.

We have a fuel cycle where, once the light water reactor is finished with its enriched fuel, with some handling that fuel can be used to get 70 per cent more energy out of it by putting it into the Candu reactor. This is what we call a tandem cycle. You take the fuel and put it first in the light water reactor and then in the Candu reactor. That means less waste and more utilization of that uranium. That can make it advantageous to a country that already has part of one program to buy Candu reactors as well.

Mr. Brandt: I asked the question to understand whether the door was locked after you had lost a bid in a particular country, but you have answered that very well.

Mr. Charlton: I would like to go back to the comments at the outset of your presentation and those at the outset of the first panel presentation, both of which referred to the letter. You emphasized three points in your comments in referring to the letter from the ministry to Hydro. First, Ontario is the key province in maintaining a capable nuclear industry. What exactly does that reference mean? I assume it means that the expectation of international sales are not by themselves sufficient to maintain the nuclear industry in a strong position and it requires Ontario's continued participation to keep that industry viable. Is that correct?

Mr. Lawson: I would not put it in such terms. The continued support I was referring to was this. If out of this province came a decision that said, "We are not interested in any further Candu reactors, period," it would be a signal to the rest of the world that would say, "If that is the home of Candu reactors, why should we be looking at Candu reactors?" That is the

extreme. In the export market there are possibilities which we referred to. It is a very tough export market. We do need support in the province. The definition of that support is one which can take a variety of forms.

For a start, a very clear statement would be to say the option is needed into the future and have a very clear commitment on that. Another level of support would be to do some preliminary work on looking at how that next program could be committed and improvements in the program to make it more cost effective. The ideal level of support would be further orders from this province in the near future.

We cannot claim it is essential to have an order tomorrow for a Candu in Ontario. That is not the case. It is going to be quite a struggle over this next three to five years to keep the option adequately alive. We have to see what orders we can get over that period of time.

Mr. Charlton: You started out by saying that a decision by Ontario that we do not want any more Candus would have a negative impact out there. Let us for a minute assume that does not happen, and all that happens in Ontario is that because of the work we are doing and the work Hydro is doing, the decision is made that we do not need one; not a question of not wanting any more but not needing any more in the immediate future. Will your expectations for international sales carry that industry?

Mr. Lawson: It is not easy to give a black and white answer to that because it is dependent on whether we are successful in those sales. We have inquiries, which is one stage of being asked to bid. The next stage is to get those orders. If we are successful in getting the orders we are going for this year, then we can survive in one form or another. It is another matter as to whether we are strong enough to capture the market that we think could be caught.

As mentioned earlier, we think the product is a very good one. It has been developed by close collaboration with a lot of parties. There is very strong support here from Ontario Hydro which our customers see and like because they look to Hydro as being a very efficient utility in its use of Candu. If we want to get the possible market that is there for Candu, we want to see an ongoing program of Candu in the province. That is not saying you commit at a particular date, or you say you are committing the billions at this point; but it means at least having a plan that once the load growth is clearly seen and the programs are clearly seen from a requirement point of view, then Candu is considered.

Mr. Charlton: I participated in a session a few weeks ago with some delegates from Holland, who were here looking at Candu and obviously shopping around for a nuclear option for two fairly substantial nuclear power plants. During the course of conversations, both with them and with officials of AECL, it became very clear that although two of the three major political parties in Holland are supporting an investigation of the possibility of two major nuclear plants, the conditions they have put on acceptance of that option virtually preclude its viability for them, and at the very least preclude its viability in relation to Canada. It seems to me those kinds of restrictive things are something that is growing out there in the real world as to how other countries approach the nuclear power question.

For example, one of the three major parties was opposing the nuclear option, two were supporting it; but the condition was that they had to find fuel supplies from a supplier who was prepared to take back the waste. I

cannot swear that they will not find that supplier somewhere, but they are not going to find one in this country.

Mr. Lawson: A variety of requirements come from different people. In the Netherlands, the situation is the utilities have not yet come out with their inquiry document. If you ask those same politicians whether they are the people who are going to dictate what will happen to that nuclear program in the Netherlands, they say it is not them, that they have a part to play. Their program, as publicly described in Holland, is they have what they want and they also have what is a wish list. If there is a requirement as rigid as you are saying, then it would not be easy for us or anyone else to compete in that market.

There seems to be a good prospect of convincing the Dutch that Candu is a viable alternative to the one reactor they have at present. In their parliament they have agreed that they want to pursue a nuclear market and we have had quite a lot of encouragement from the various people we have talked to and worked with in the Netherlands that our safety is acceptable, that our reputation and the performance of Candu is acceptable to them, and we are aiming to try to get on the bidding list for those plants once the organizations are in place for inquiring for those plants and the inquiries are written.

Mr. Charlton: My understanding from the people I talked to was not that they had a wish list, but a political must list and that both of the parties which are currently supporting the option will not proceed without guarantees of waste disposal outside of Holland.

Mr. Lawson: No, that is not our understanding of the situation.

Mr. Charlton: My understanding came from the Dutch delegates who were here, presumably the same people you were talking to.

Mr. Lawson: Yes. We talked to a lot of people in--

Mr. Charlton: In bottom line, what is the real future in terms of being able to sell Candu on the international market?

12:50 p.m.

Mr. Lawson: We currently have a small percentage of the market that still is roughly five per cent. We predict a large market there in the future. In looking at it in detail from country to country, there are perspectives of getting that amount. We believe if we have a stronger industry back here, we would be able to increase that percentage quite considerably, which would bring additional trade and jobs into Canada, and into this province in particular.

Mr. Charlton: As you have said, in Ontario, the performance ratings of the Candu program in the past have been among the best in the world. However, I would think that because of units 1 and 2 at Pickering and other things that are happening, the performance rating is going to drop somewhat in the next round of evaluations. That performance rating has been there since the beginning, and yet you are saying you have a very small share of the international market: five per cent. Why is it that we have been able to obtain such a small share of what has happened internationally?

Mr. Lawson: The history is very simple. We were late into the

international market. At the time we did not have the marketing, support facilities and skills of our big international competitors in the United States. Also, at the period when the bulk of the world market was ordering a lot of nuclear power stations, we were having technical difficulties in providing enough heavy water to meet the requirements. All those factors meant we were not in a position to take advantage of the big buildup in the market at that point.

Mr. Charlton: I go back to what you said about the negative impact of Ontario saying, "We do not want any more Candus." Earlier, Mr. Brandt raised the political question of why Taiwan picked US reactors when we look at all the negative stuff that has been happening around the US nuclear program. They are still selling them.

Mr. Lawson: A lot of countries around the world are still politically acceptable and have signed a nuclear nonproliferation treaty and are acceptable to selling. These are the markets we are looking at.

Mr. Charlton: What is going to change from this point on in terms of your ability to sell reactors if you have not been able to crack that market in the past?

Mr. Lawson: The market in the past, when there was the bulk of orders, was one with the reasons I have stated. Then we come into the situation where there would be no ordering, and there were not a significant number of orders on the world market. We have been into that period for at least the last five, if not seven, years, and now we have what we think will be a relatively short period ahead before the markets pick up again.

Now we are in a position where the climate is quite different. We have the operating performance. We are able to see that the plants perform well. They perform not only in a large utility such as Ontario Hydro, but also in smaller domestic and overseas utilities. It is this record which is good. All these customers talk to each other. The best way of convincing other people to take an interest is when they are able to see good, economic performance and good, reliable and safe performance in the plants that have been sold to other people.

Mr. Charlton: What you are telling me is that there is still a period of time before that market recovers.

Mr. Lawson: Yes.

Mr. Charlton: At the same time, we are seeing that the performance rating of Candu reactors in Ontario is going to drop over that same period.

Mr. Lawson: We hope it is going to pick up again. The progress on Pickering 1 and 2 is particularly good and, of course, we kept all our customers fully aware of what happened there. Our customers turned around to us and said: "You have a good design there. Do you mean to say you can actually change those components and refurbish the reactor? That is great. The competing reactors cannot do that." That reaction was very encouraging news to us.

Mr. Chairman: If I may interrupt here, we have nine members of the committee. We have another presentation, which was due to start at 12:30. We will go to Mr. McGuigan for a brief question.

Mr. McGuigan: On your base-load scenario, you leave out coal. I realize, of course, that coal is used for peaking power, but is it not also used as a base load here in Ontario?

Mr. Donovan: In some jurisdictions it is but, by and large, not here in Ontario. Some utilities use coal for base load. However, as I pointed out early in my presentation, Hydro has tended to use its hydraulic stations on the St. Lawrence and Niagara rivers as being the most attractive because they have a constant supply of water and nuclear for base load.

If you recall, when we went through the profiles of the possible ways of meeting the base-load additional requirements that we saw, we listed coal. I went through a profile on coal. It could be used. We believe it is more expensive and economically not as attractive. It has not been Hydro's modus operandi to date.

Mr. McGuigan: We have coal plants in operation now.

Mr. Donovan: Yes, sir.

Mr. McGuigan: Is not some of that capacity used as base?

Mr. Donovan: By and large, it is hydro and nuclear. There may be a little bit of base loading of coal, but it is primarily hydro and nuclear.

Mr. McGuigan: I have another quick question related to the decommissioning costs of a nuclear plant. I think when they first built these plants they figured on about 35 years of life. That has been extended. What do you figure the life is today?

Mr. Donovan: It depends on the design and whether we are talking about light water or Candu or what. I will let Don address the Candu.

Mr. Lawson: It is an estimate. It depends on what the alternative is when you get near the end of life of the components, the pressure tubes, calandria tubes, as to whether it is more economic to take them out and change them and keep the plant going or to build a new plant. If we make a lot of progress in cost-effectiveness of new plant, that will be the most effective thing to do.

In today's climate, we think the most effective thing we will end up doing on the plants is to refurbish them for another spell of life. The life can well be quite long. It is hard to try to put a figure on it as to whether it is 50 or 60 years, but they will be treated rather like hydraulic plants where you go and refurbish them and then see what their life is further ahead of that. That is what we anticipate will be the likely method of handling the Candu nuclear plants.

Mr. McGuigan: You can refurbish or replace the mechanical part. What is the life of the concrete?

Mr. Lawson: The concrete is good for a very long while.

Mr. McGuigan: Radiation does not deteriorate it and so on?

Mr. Lawson: No, as long as it is cooled. You can look at concrete the Romans and the Greeks dealt with. It has been around a long time.

Mr. McGuigan: It does reach a maximum strength and deteriorates.

Mr. Lawson: That is during the early curing process, in the first months.

Mr. McGuigan: Conceivably, we could continue using those plants.

Mr. Lawson: Yes. When you mentioned the components, that also includes the static pressure tubes, which do deteriorate under radiation. They creep and sag.

Mr. McGuigan: It is not only the relatively short life of the thing and the decommissioning costs, but there is also a very large area of land involved in each one of these plants.

Mr. Lawson: It is smaller than a coal-fired plant of equivalent size and output.

Mr. McGuigan: Yes, but the coal-fired plant is liable to stay there for a long time.

Mr. Lawson: So is the nuclear, and you would use the same site. Once you have an infrastructure on the site, you would use it. It is valuable.

Mr. Chairman: Thank you very much, members of the panel.

We have Colin Isaacs. Mr. Isaacs, maybe you can begin by introducing yourself and your associates for the benefit of Hansard.

POLLUTION PROBE FOUNDATION

Mr. Isaacs: Thank you very much. I will do that.

My name is Colin Isaacs. I am executive director of the Pollution Probe Foundation. With me is Stephen Hall, who is our energy policy researcher with our Ecology House project. Also with us is Jake Brooks, who is handling the acetates we will be using for the slide presentation. He was also the co-ordinator for Energy Forum 86, which is the major topic of our presentation to you today.

1 p.m.

Mr. Charlton: Perhaps the record should also show that Jake Brooks is David Brooks's son.

Mr. Chairman: Thank you very much, Mr. Charlton. Carry on.

Mr. Isaacs: Pollution Probe, as many of you will know, is a nonprofit, nongovernmental, charitable foundation which, since 1969, has been one of Canada's foremost environmental organizations. For over 17 years, we have been concerned about the relationship between our energy system and environmental quality.

Before I continue, I make the point that Energy Probe is not a part of the Pollution Probe Foundation. We are two separate organizations, even though some find the likeness of names somewhat confusing.

In October 1980, Pollution Probe opened the Ecology House project.

Ecology House is a demonstration of energy and resource conservation located on Madison Avenue in downtown Toronto. At Ecology House, we transformed a 95-year-old, fuel-hungry Victorian home into a showplace of residential energy conservation. The staff and volunteers of Pollution Probe were successful in reducing our energy use by 80 per cent through a combination of energy-efficient technology and passive solar design.

Since Ecology House opened, we have educated at least hundreds of thousands of Canadians on the nuts and bolts of residential energy conservation. We also understand that the enormous and growing potential of energy efficiency will not be realized until significant policy changes take place. The initiation of Energy Forum 86 by Pollution Probe was our attempt to reposition energy efficiency back on the political agenda.

I want to thank the committee very much for giving us this opportunity today to present to you the results of Energy Forum 86.

The origins of Energy Forum 86 evolved out of the landmark 1983 soft energy path study for Canada conducted by David Brooks, John Robinson and Ralph Torrie. Using conservative assumptions, the results of the study, as I know you are all aware, demonstrated that Canada in the year 2025 could use between 12 per cent and 34 per cent less energy than in 1978. The study also confirmed that, over the 47-year period, reliance on renewable forms of energy would rise from 16 per cent to between 77 per cent and 82 per cent. Thus, the study demonstrated the technical and economic feasibility of the soft energy path.

That study provided the impetus for Energy Forum 86, whose purpose was to encourage the development of energy efficiency as the central component of Ontario energy policy within the framework of a least-cost energy strategy. Presentations on the technical and economic potential of energy efficiency were given by many of the noted energy analysts who have appeared before you, such as Amory Lovins, David Brooks, John Robinson and Ralph Torrie. However, the core of the conference and the part that was so innovative, in our view, involved the multi-stakeholder public consultation developing an implementation strategy for energy efficiency in Ontario.

We are pleased to report that on two days in February of this year more than 200 representatives from business, labour, government and public interest groups gathered at the conference site. The acetate that is on the screen at the moment--and just about readable, I hope--gives a breakdown of the representation of those various sectors. I think you can see that while it is possible to debate the exact balance, there was good representation from every sector interested in energy policy in this province today.

Several members of the staff and of the committee itself attended, including you, Mr. Chairman, Mr. Charlton, Mrs. Grier, Larry Moore and Brent Snell. Broad representation from across Ontario participated, including staff from the Ministry of Energy, Ontario Hydro, Energy Probe, Westinghouse, and others.

The result, despite severe limitations, was the production of a document presenting an agenda for action on energy efficiency in this province. We are here today primarily to report on those results. I am going to turn the microphone over to my colleague, who will present to you the outcomes, the main policy thrusts and our further recommendations from Energy Forum 86.

Mr. Hall: I want to go over the main policy thrusts that were

prevalent throughout the conference mentioned by the keynote speakers, by the panelists and that emerged continually in the policy workshops.

The first and most important recurring theme was what we call the least-cost energy strategy. In order to clarify any misunderstanding of what least-cost means, I want to quote a definition which says, "Least-cost energy resources are those additional sources of energy supply or energy demand reductions that can be obtained for the least total costs to utilities and their ratepayers." Total costs are not only the long-term social and environmental costs, but may also include noneconomic criteria as well, such as local job creation, regional self-reliance and conservation of nonrenewable resources.

The least-cost energy strategy requires a conceptual shift on the part of utility planners from simply selling electricity to one of providing electrical services which people require for heating, cooling, lighting, etc. Thus, innovative residential conservation programs, such as we have seen in California, or cash rebate programs for the purchase of energy-efficient appliances, are seen to compete directly with existing and new supply sources.

In order for this competition to take place, Roger Sant, who is the originator of the least-cost definition, offered this caveat, "This enhanced competition requires an economic environment in which competition is unhindered by questionable government subsidies or artificially low prices."

The second major theme throughout the conference is small power production. Many participants agreed that small power production is vital and should be strongly encouraged through independents and municipal utilities. Industrial cogeneration and small hydro could be promoted by increased capital availability, better access to the grid and the establishment of a permanent process of power purchasing, possibly an auction process. However, the critical factor seen to be the most important in this development is the establishment of a buy-back rate that reflects full avoided cost.

Third is the actual process of Energy Forum, which we call a multi-stakeholder public consultation. Here, stakeholder means there are groups that have a vital interest in the issue, are directly affected by its outcome and can make an important contribution to the resolution of the issues.

Public consultation can be defined as an ongoing dialogue among affected stakeholders, including government, aimed at obtaining all the relevant information, evaluating the available options and their related consequences, and providing a balanced perspective to each stakeholder's decision-making. This is a prime objective to obtain consensus at each stage of the process.

In the past, energy policy and planning has emerged in isolation. Small groups of energy planners, operating without the input from the rest of society, have turned out energy decisions which have given little thought to be full political, economic, social or environmental implications. Now the utility management environment has changed significantly with growing support for input into government policy, concerns for environmental quality and rapidly changing economic and technological conditions. Success for future energy policy and planning therefore must take place in a supportive process of public consultation.

1:10 p.m.

When this kind of process is initiated, artificial barriers between

people are relaxed and often workable solutions arrived at. I want to talk about one of the anecdotes of our conference, Energy Forum 86, the sight of Amory Lovins, whom I am sure you all know, having dinner and chatting with representatives of Ontario Hydro, who were talking to Amory about his house in Colorado, exchanging notes and business cards. This is the kind of goodwill that can be generated when people sit down and talk together. However, Energy Forum 86 also produced concrete results, and broad agreements from policy workshops for implementing demand-side options came forward. Here are some of the main recommendations arising from the policy workshops.

1. Large-scale thermal upgrading of residential, commercial and industrial buildings should be encouraged through third-party financing.

2. There should be energy-efficient performance standards set for appliances and heating systems.

3. There should be the removal of provincial sales tax from energy conservation products.

4. New energy performance standards should be set for residential and commercial buildings.

The participants of Energy Forum 86 were keenly aware of the environment of government restraint. Therefore, many of the recommendations coming forward were designed to break institutional barriers rather than make new demands on the public treasury.

We emphasize that Energy Forum 86 was the first step in the right direction of encouraging dialogue and exchange of information among key energy actors. However, more work needs to be done in a consultative, multisector manner in order to fine-tune the policy recommendations, particularly in strategic conservation.

If we follow this kind of multi-stakeholder public consultation process and come out with these policy recommendations, there are many benefits to Ontario, economic benefits, such as reducing the Ontario Hydro debt; long-term local job creation in labour intensive industries, such as the building industry; and also reduced costs for home owners and businesses.

There are the obvious environmental benefits, such as a sharp reduction in acid gas emissions; and reducing the rate of production of spent nuclear fuel, which could be slowed in order to buy us time to find long-term disposal solutions.

Also, there are the political benefits that come out of this kind of process. Conservation and alternative energy are very popular with the public, which is very eager to be involved in policy formation in this area.

I now want to turn to the recommendations to the committee arising from our experience as facilitators of Energy Forum 86. The first one is a short-term measure that an independent evaluation of the results of the demand and supply options study, phase 2, take place and that a steering committee composed of the key energy actors be formed, the actors being government, business, labour and public interest groups.

Second, the Ontario government should legally mandate least-cost resource planning, using an energy services approach. Strategic conservation should be given preferential treatment in this model and some investigation should take place looking at supply-side constraints.

Third, a new commission should be established to review Ontario Hydro's resource plans every two years, and public interest groups should receive full intervenor funding to do research and prepare presentations to this new commission.

The select committee has a unique window of opportunity here to help realign Ontario energy policy and planning with the trends of the 1980s. Pollution Probe has laid a solid foundation of support for demand-side options and intends to continue to promote energy policies which meet the needs of the people of Ontario and the environment.

I want to thank the committee for giving us the opportunity to present here today.

Mr. Chairman: Mrs. Grier.

Mrs. Grier: Are we into questions?

Mr. Chairman: We are there.

Mrs. Grier: Thank you for your presentation and congratulations on the conference. I think it was a very worthwhile experiment.

I am wondering whether you feel that the recommendations were a consensus? Was there much disagreement in coming to your conclusions?

Mr. Isaacs: The recommendations, which we have published and which will be distributed to you in the report with the brown cover, are consensus recommendations of the individuals who attended the specific workshops. There was not a plenary session at which they were tested as a whole. The individuals attending were not representing other groups. They were, however, for the most part individuals who are very involved in energy policy in Ontario and who are very well informed. We are confident that these recommendations and perhaps many others will stand the test of a broader consultation process, particularly if trust were built among the stakeholders over a few days or a period of meetings.

The process we used at Energy Forum '86, significantly, is based on a model developed by the Niagara Institute for Environment Canada. The Niagara Institute model was developed particularly for policy planning in toxic chemicals management. The trust-building and policy development process has been going on for nearly two years and is by no means yet complete. That is not to say it is slow. I resist the suggestion that it is slow. Development of policy by any process takes a very long time. The traditional mechanisms that have been used by government, as you know, can take many years to come to fruition.

We think that a consultation policy development process is very efficient because the results of it have won such widespread approval. Those involved in process, such as the Niagara Institute and the consultants engaged to manage the consultation for Energy Forum '86, were extremely surprised at the degree of consensus it was possible to reach after only two days of being together. We would not want to suggest the results are perfect. We would be willing ourselves or would encourage others to take those recommendations and subject them to a broader-based consultation program.

Mrs. Grier: In your long-term recommendation, can you explain to me a bit more clearly what you mean by, "Investigate supply-side constraints"?

Mr. Hall: Yes. There are two ways of developing a least-cost resource plan. One would be to open up to all the strategic conservation options. Another way would be to require Ontario Hydro to shut off certain supply-side options to free up more options in the strategic conservation side.

Mrs. Grier: It is specifically shutting down for the sake of shutting down. It is not lowering acid gas emissions and thereby cutting down. It is just saying, "You will show preference to developing demand-side options."

Mr. Hall: There may be a look at supply-side options that are simply not acceptable or unattractive at this point.

1:20 p.m.

Mr. Isaacs: The follow-through from that is to suggest that there is a risk associated with every policy option the province chooses. We never have all the information about any particular approach. We all take gambles in our everyday lives. Ontario Hydro, the government of Ontario and the opposition parties take gambles when they set policy and decide to move in a particular direction. We are suggesting that given all the risks, given the information that is available today about the level of risk associated with the various options and in particular with supply-side options versus demand-side options, we should move the bias that perhaps has existed in the past to provide more supply to the demand side and give the demand side the opportunity to prove itself for Ontario.

Mr. Brandt: I compliment Pollution Probe on the development of Ecology House. I have acquired a fair amount of information on the kind of activities that have gone on there and on the impact it has made with respect to conservation. It is an excellent example of what can be done, specifically in the residential field. It is an outstanding project.

Having said that, I looked very carefully at the four main policy recommendations that came out of the forum. I tend--this may come as a surprise to Colin Isaacs--to agree with all four of them.

Now that we are on common ground, I want to get into the specifics. That is always the difficult area. The difficulty I see with respect to implementation of some of the four-- I address as an example number 2, "Set energy-efficient performance standards for appliances and heating systems." There would have to be--I think you would agree--not only some form of policy on the part of government but some form of legislative control over, as an example, the type of appliances that could be manufactured, the energy efficiency or conservation that would have to be built into those appliances.

I do not necessarily disagree with that kind of government intervention if it is done in a sensitive way, nor do I disagree necessarily with some form of government legislation to bring about an improved level of conservation. Can you perhaps elaborate on what you see as the pathway to the point where we could exercise some of the opportunities for more conservation? Do you agree that it will require government intervention and legislation? What do you see as necessary to put an effective package together?

Mr. Isaacs: Thank you for your comments about Ecology House. It does not surprise me at all that we are on the same side on these issues. I am going to let Mr. Hall address some of the details. In a general sense, there are two ways of dealing with recommendations such as this. There is a carrot

approach and a stick approach. I see government regulation as generally a stick approach. A number of areas utilized by utilities elsewhere, and which I am sure Mr. Hall is going to touch on, can be seen very much as carrot approaches.

We have to strike a balance between those to make programs such as development and marketing of efficient heating systems work in the best possible manner. I suggest that if that is the kind of recommendation government sees as valuable, and we hope very much that it is, the stakeholders, those people in society who are most familiar with these areas, should be asked to come and assist with development of an implementation strategy.

We are finding more and more in the environmental area that it is very possible for industry, labour, consumer groups, environmental groups and others to sit down and work out solutions to these problems. One of the main reasons for holding Energy Forum '86 was to find out if it is possible to use those same mechanisms in this area. We are convinced that we have proven that it is possible. It would be very appropriate to bring together representatives of ourselves and other groups with industry--some of the national manufacturing associations, for example--and labour to address the kind of implementation questions you are posing.

I will turn it over to Mr. Hall to talk about some of the specifics shown to have merit.

Mr. Hall: There are usually three components to upgrading efficiency in appliances and heating systems. The first component is a consumer information awareness program such as Energuide which helps consumers be aware that appliance manufacturers are competing to produce the best efficient appliances. The second part is the performance standards. Usually there has to be a third component of providing some form of financial incentive. For instance, in the Pacific Gas and Electric case in California they offer a \$250 cash rebate for any consumer who buys an energy-efficient gas furnace. There usually has to be the three components. At least, initially, there seems to be a financial incentive needed, like a cash rebate program offered by a utility.

Mr. Brandt: One of the interesting things with respect to this particular question that we heard in earlier presentations was that with all of the best intentions, speaking specifically of the appliance field, the missing link appeared to be on the floor of the retail establishment itself where some large chains simply refused to take part in the promotion of energy-efficient appliances.

The salesmen, or saleswomen who are involved in the sales of those particular products are either less than adequately educated or, certainly, less than adequately motivated to move those appliances. As a result, even if the entire system is co-operative, from the standpoint of government, the Energuide labels, the manufacturer, everyone, when you get right down to the point of sale, which is of course vitally important, the system collapses at that time.

It is an interesting observation because it certainly points out that you have to have a very comprehensive package in mind that maybe covers the kind of thing you have mentioned, which is the economic incentive of buying something, like a \$250 saving on a furnace or a bonus situation could be put in place to a salesperson to move a particular product because it was an energy saving device.

Mr. Hall: Or perhaps a specific training program for salespeople to help them understand the kind of program that is being put into place with the kinds of motivation required.

Mr. Brandt: I want to make this comment only because it may be useful to you. One of the comments that we heard is that some of the large retail chain operations are reluctant to get into the sale of energy efficient products because it slows down the sales. In other words, even though you educate the salesperson, the fact of the matter is that it does take some time to explain the efficiency of that particular appliance to a potential customer and, therefore, the sale slows down to a certain extent. Time is money in business. I just wanted to make that as an editorial comment without necessarily looking for a response.

One of the other things in the field of energy conservation that I wanted to pursue was the comment made indicating that in some of the large consulting companies involved in this particular area of activity have, by their own admission, scratched the surface in terms of the application of conservation measures in either large commercial or industrial buildings. They indicate that the return on their invested time, and the capital they have to put into the project, is really sufficiently slim that they have not been able to look at the vast thousands upon thousands of smaller businesses where the same technology could be applied, but where the economies of scale are not as attractive.

My question to both of you, as representatives of Pollution Probe, is that it would appear that there may be some opportunity for someone like Probe to get involved perhaps in trying to meet that other market that is out there, in other words, the smaller market which was identified.

I am glad the chairman is still here because he was absent when the comment was raised in one of the submissions concerning the Sudbury hockey arenas. They did an efficiency study there but found that the market was too small for them to become involved directly in introducing energy efficiency measures in Sudbury. One might think of a hockey arena as being a prime suspect for a great number of conservation ideas, and concepts that could be introduced.

Can you respond to my specific question by way of indicating whether Probe would have an interest in that kind of thing, in other words, looking at the smaller market? If not Probe, then is there someone else that you might know of an applicant for that kind of activity?

1:30 p.m.

Mr. Hall: Ecology House has, in the past, tried to do those kinds of programs where we reached out to salesmen in hardware stores, building inspectors, all those people who are involved in the everyday nuts-and-bolts decisions of implementing energy efficiency. We would certainly be interested in looking at, particularly in the residential field, taking on those kinds of technology transfer programs.

Mr. Charlton: Can I get a supplementary in here? I think Mr. Brandt's question went one step further than that. What he was talking about was a consulting firm out there doing what we perceive as reasonably good energy conservation work, but they are essentially saying that the small project is not, in terms of the consulting aspect, going in and designing the program for a building or set of buildings, that it is not within its economic

best interests as consultants. It cannot go in and do the job and make the kind of money it needs to operate.

The suggestions have revolved around perhaps Ontario Hydro providing the kind of facility to do those smaller aspects out there in society. I think what Mr. Brandt is suggesting is that if organizations like your own were given the implementation of some of these recommendations they would be in a position to take advantage of that gap in the delivery of programs.

Mr. Isaacs: In my view, we are certainly an efficient, least cost delivery mechanism, probably even a subsidized delivery mechanism for all kinds of programs. I think, in that sense, it might be the kind of thing we would be interested in looking at as long as there was support from somewhere to enable us to do it. One can only ask staff to work 80 or 90 hours a week for low pay and be overloaded, as they tend to be at the moment. It becomes very difficult to add on others.

I think the analogy is an excellent one, and it may be that the basis of Mr. Brandt's question is in the area of municipal waste recycling. In the early days of recycling, a lot of local community groups with concern about the environment, with the belief that recycling must be developed, took on the responsibility for a lot of the activities that would not have been economic for a consulting firm, or even for government itself. As a result, we have moved, in the last decade or so, to a system where we now, we hope, are on the edge of a massive growth in recycling in Ontario.

There is very much a role for community-based groups to work with local hydros, to work with local business associations, and to develop an expertise and an interest in this area that can serve the province very well until such time as a full economic potential can be realized. It then becomes a profitable activity for larger companies.

So in short, the answer is yes, but it might not be us. It might be developing a network of organizations. We are always very interested in finding ways of getting things like that to happen rather than necessarily doing it ourselves, although if it was something that government wanted to promote, and if funding was made available, we would certainly be happy to take a look at it.

Mr. Brooks: I want to make one additional comment on that. I would not like to leave the members of the committee with the impression that these kinds of measures are uneconomic at present. On the whole, most of the measures we are talking about are quite economic, in fact they are more economic than the average investment. Returns to energy conservation investments are significantly above returns on investments in the economy as a whole.

What is missing is leadership, initiative, confidence, trust, all those soft areas of where the government can provide a lot of help at low cost. In particular, education of the financial community is important there. That is not really a very high cost measure.

Mr. Brandt: By way of amplification, my reason for raising the question was simply that there is a vast untapped market out there where the economic viability appeared to be questionable, and where specific presentations to us, as Mr. Charlton indicated, gave us the impression at least that the larger firms are being addressed in terms of conservation measures, but a lot of the small market is literally going untapped at the

moment. I wanted to see whether Pollution Probe, Ontario Hydro or someone else wanted to get into that field or whether it perhaps made sense for you to pursue that market. I say that because Ecology House is really directed towards the residential field. A spinoff from Ecology House into an industrial house, commercial house or something else might be a project that could be looked upon down the road at some time.

I want to pursue one more question, and I recognize the time constraints. Recognizing that a kilowatt-hour of power conserved or saved is much the same in terms of cost as a kilowatt-hour that has to be produced, there has been some suggestion on the conservation side, because of the certainty of the saved kilowatt-hour being more predictable than future production and capacity needs, that a bonusing factor should be built into the conservation side. In other words, if you are looking at a straight economic comparison between a kilowatt-hour of power on one side of the ledger and one on the other side of the ledger, there should be a factoring built into that.

I have become a believer in that position, that there is more benefit on the conservation side, and there should be, because there is less uncertainty on the conservation side. A bonusing factor should be built in. Would you like to share with us, if you agree with what I am saying, what kind of percentage you think should be targeted as being realistic?

Mr. Isaacs: We agree with you and would go a step further, and say that when you build the two sides of the ledger, there are some factors on our side of the ledger that are a little more difficult to cost than factors on the other side of the ledger. Therefore, we are probably underestimating the economic benefits of energy conservation, even when we do the analyses that are being done at the moment suggesting there is some indication.

I think that bonus has two purposes: first, to recognize the societal benefits of a least-cost approach; and, second, to recognize that we may not have included all of the economic benefits of a least-cost approach and therefore we will add an extra safety margin.

The numbers that have been talked about are in the 10 to 20 per cent range to fit that kind of model. I do not think we have analysed in detail what the bonus should be, and that is probably something that should be done as well, in putting a particular number on it. However, we certainly support the concept of a bonus, at least in the initial phases, to help move things in the right direction, an affirmative action kind of bonus for energy efficiency.

Mr. Brandt: I wanted to see how realistic your guesstimate was, and I appreciate it can be nothing more than that because of the number of variables and unknowns. A range of 10 to 20 per cent does not appear to be unrealistic. I compliment you on coming up with a figure that could withstand the avalanche of economic scrutiny that may come into play on some of these questions. We all live in the world of economics; on occasion, that has been a deciding factor in many decisions that have been made, as you can well appreciate.

Mr. Charlton: I will try to be brief, but I have a couple of questions I would like to ask.

Mr. Brandt's comments about demonstration projects in the commercial-industrial sector are interesting. Perhaps we can convince Hydro and/or the government to allow you to retrofit the old Hydro building as a demonstration project, but that is not my question.

Mr. Brandt: That is running up the flag and an interesting one.

1:40 p.m.

Mr. Charlton: That is right.

One of the things this committee is confronted with is what I will describe as the "Yes, it will, but we are not sure" syndrome. One side is pushing the conservation potential very aggressively and the other side is saying: "We think there is some potential there, but we are not sure. You cannot rely on it. If you want to have reliable electrical power in this province, include some minimal conservation, but you cannot really count on it." To put it another way, it is the tried and true versus the untried and theoretical.

To some extent, this set of hearings has moved that argument forward a little. We have had much more in the way of specifics this round than we have ever had before. Unfortunately, many of the numbers, guestimates, estimates and descriptions of energy-efficiency programs tend to be in global terms. One of the things that would help this committee would be some very practical, down-to-earth numbers.

I raise this with you simply because of Ecology House and the work you have done there, not only in terms of understanding efficiency potential but looking at its real application and then its operation. I do not want a complete answer now, but are you in a position to provide us with some fairly up-to-date figures, not only in terms of the cost of a global retrofit such as you have done at Ecology House, but on the questions around things such as air quality as a result of sealing and the real operation of that house after the project is done, concrete figures from a tried-in-Ontario experiment?

Those gross societal figures and estimates of costs are as confusing to politicians in relation to conservation as they are in relation to what declining oil prices mean or the impact of changing wheat prices on the world economy. All those maxi-things tend to be confusing in terms of being able to understand the impact. It would be really useful if you could provide us with some concrete numbers so that we can understand the impact.

For example, Ecology House is particularly big. It would be useful if you could put that in a square-foot context.

Mr. Hall: Ecology House is 5,000 square feet. In 1980, it cost approximately \$20,000 in 1980 dollars to completely retrofit the house. The energy savings were calculated and, according to our calculations, we found if the house had remained the same, our energy bill this year would be well over \$6,000 for the heating season. As it stands now, our gas bill is approximately \$750. We have reduced our energy use by well over 80 per cent. Given that we put \$20,000 into the retrofit in 1980, we have pretty much paid that back by now.

Mr. Charlton: What impact would there be on electrical use in the house? Have you kept track of that?

Mr. Hall: Certainly, the electrical use would be reduced as well, simply because we would be emphasizing more natural daylighting in the house because of the passive solar design. There would be some impact on electrical use as well.

Mr. Charlton: There would also be an impact on the motor operation for the heating system and so on, I would think.

Mr. Isaacs: The Ecology House situation is confused a little by the fact that it is open as a public demonstration. There are lots of other activities taking place there, as you are well aware, which make it difficult to monitor as a home environment. It is almost a cross between a house and an office building; therefore, there are lots of uses of electrical power within the building that would not be typical in a house. There are other examples that are available now

Mr. Charlton: I am aware that your Ecology House crew has gone out and done retrofit projects on what are truly and strictly residential homes in Ontario. Do you follow up on those? Do you keep records of that kind of thing?

Mr. Hall: In our experience, the same thing that we have demonstrated at Ecology House has held true for other large-scale retrofit programs in other residential homes. Energy use, typically, is reduced by 70 to 90 per cent; it is cost-effective over a five-year to seven-year payback period; and there are no difficult indoor air quality problems or chimney backdraughting problems, etc.

Mr. Isaacs: We have had funding requests in to numerous agencies, including the Ministry of Energy, just about every year for the past three or four years to produce publications, exactly as you are suggesting. If I can use an analogy that I know you, Mr. Brandt and no doubt others would be very aware of, in the industrial waste area a few years ago Pollution Probe published a book called Profit from Pollution Prevention. We have been looking very seriously in the last couple of years at doing something similar in this area, that is, a publication on profit from energy efficiency, addressed not necessarily just to home owners, but also to small-sized and medium-sized businesses, to begin to spread the word on the benefits of this kind of approach. That is still something we hope one day we may be able to do, and we will address a lot of those questions as well as addressing the business questions Mr. Brandt was raising.

The value in that kind of thing is it puts information out to the people who are in the position of making the decisions. Of course, the cost information that is contained in that kind of publication is the cost to the individual rather than the cost to society. If the individual is profiting, as he so clearly is in a lot of these energy-efficiency projects, society is going to be benefiting to a much greater extent because the individual is not paying the true costs of the energy that is being consumed. In that regard, you hearken back to the global numbers again because it is all we have got at present, where at least at the moment you can show in a global sense a kilowatt saved through energy efficiency is equivalent to two of three kilowatts produced on a supply-side model.

Mr. Charlton: We have had presentations with all of those kinds of numbers. I do not want to prolong this, but can you provide us over the next week or so with some example numbers of a specific retrofit, the dollars involved, the savings and that kind of thing? Obviously, one of the things we are looking at is, as has been suggested in your recommendations, the possibility of public programs and/or third-party financing, that kind of thing. We need to be able to look at the cost impact on public funding of those kinds of things.

Mr. Isaacs: We can do that in at least a small number of examples.

The Acting Chairman (Mr. Gordon): Thank you for coming today, Colin Isaacs, Steve Hall and Mr. Brooks. We will certainly take this into consideration in our deliberations.

I remind committee members to take away everything that is before them and also that we meet at 9:30 on Monday morning--

Mr. Haggerty: Sharp.

The Acting Chairman: --sharp.

I want to thank our guest speaker, the member for Sarnia (Mr. Brandt), for coming today.

Mr. Brandt: Thank you. I appreciate that a great deal.

The committee adjourned at 1:50 p.m.

CA26N
XC 2
85N22

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

MONDAY, APRIL 14, 1986

Morning Sitting

SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)

VICE-CHAIRMAN: Asne, G. L. (Durham West PC)

Charlton, B. A. (Hamilton Mountain NDP)

Cureatz, S. L. (Durham East PC)

Gordon, J. K. (Sudbury PC)

Grier, R. A. (Lakeshore NDP)

Haggerty, R. (Erie L)

Jackson, C. (Burlington South PC)

McGuigan, J. F. (Kent-Elgin L)

Polsinelli, C. (Yorkview L)

Sargent, E. C. (Grey-Bruce L)

Substitution:

Shymko, Y. R. (High Park-Swansea PC) for Mr. Jackson

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy

Snell, B., Consultant; with Canada Consulting Group Inc.

Witnesses:

From the Ontario Energy Board:

Macaulay, R. W., Chairman

Cooke, G. L., Director, Technical Operations

Individual Presentation:

Berkowitz, M. K., M. K. Berkowitz and Associates Ltd.

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Monday, April 14, 1986

The committee met at 9:38 a.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: The committee will come to order. As our first witness this morning we are pleased to have Robert Macaulay, chairman of the Ontario Energy Board. Mr. Macaulay, would you come to the table, please? If you are by yourself, we know who you are. If you are bringing others, would you introduce them, please?

Mr. Macaulay: Mr. Chairman, I will do what I can on my own, if that is agreeable to you.

Mr. Chairman: Thank you.

ONTARIO ENERGY BOARD

Mr. Macaulay: I have put together some material, which I have handed out to you. I will not take you through the first page, which is a table of contents. Page 1 is a letter from Mr. Andrewes in which he identifies seven different matters that he felt might be of interest to you.

I would like to have it understood that in coming here today I am not an advocate. I do not come here to present or to propose legislation. When I was a legislator I felt that that was my responsibility, but I am not a legislator now. My duty is to implement the policy of the Legislature and to carry out the legislation for which we are responsible. In speaking with you today I am very anxious that I not be thought of as an advocate, because I am not.

In his letter of April 10, Mr. Andrewes asked if I would speak to you about seven matters, which I will do very briefly today. I also have slides that I will whip through with you.

The first thing Mr. Andrewes asked me to provide is background on the formation of the Ontario Energy Board and the reasons behind the review provisions of Ontario Hydro. The second is an outline--and I am reading from Mr. Andrewes's letter--of the Ontario Energy Board Act as it relates to the regulation of Ontario Hydro. The third is a comparison of the Ontario Energy Board power to regulate gas utilities and to regulate the operations of Ontario Hydro. The fourth is the scope of the recommendations we make as a result of our legislation. The fifth asks what has happened to the recommendations we have made to Ontario Hydro. The sixth is the information exchanges we have with the Ministry of Energy and Ontario Hydro. The last is the role of the public in our annual rate hearings.

If you will be kind enough to look at the first slide, I will go through it very quickly with you. The origin of the Ontario Energy Board Act was in 1960. Previously there was no legislation. One day--one has all these vignettes in one's life--I was sitting in the same position as many of you when the Premier called and asked whether I would write the legislation to set

up the Ministry of Energy and the Ontario Energy Board, which I did. At that time there was no Ministry of Energy anywhere else on the continent, and so it was new legislation. On reflection, I think it has survived fairly well.

I was also vice-chairman of Ontario Hydro at the time, and Hydro reported to the Legislature through the minister. At that time it was not felt that there was any necessity to include anything about Ontario Hydro in the Ontario Energy Board Act. Ontario Hydro was not included in the act until 1973 or thereabouts. It became included as a result of two studies that were carried out by two different committees. A number of problems were developing that were not of Hydro's making; they were the result of the oil difficulties, increasing costs and the turning to nuclear energy. A number of different problems escalated and accumulated all at the same time.

The government looked into the question of how Hydro should be looked at by the government or somebody else. As you will see on the first slide, that is the origin of the Ontario Energy Board Act. As I recall, the origin of section 37 came in about 1973. If you look at Hansard at that time you will see that there was extensive discussion among a number of members of the Legislature: Mr. Nixon, Mr. Singer, Mr. Davis, Mr. McKeough and several others.

The impression I had from the legislation was that it was intended to be done in two phases. The first phase was that Hydro's rate proposals would be reviewed by the Ontario Energy Board and the second phase, if I understand the debate at the time, was that it would be followed by additional legislation whereby the board or someone other than the board of directors would fix Hydro's rates.

I may have gathered the wrong impression. Certainly there are people who were available at that time who can testify to that. In any event, I think section 37 was introduced in 1973. I may be wrong; it may have been 1972 or 1974, but I think it was 1973. I do not intend to take you through it, but it is set forth on pages 5 and 6 of the material I have handed out to you.

Subsections 37(2) and 37(3) are the heart and gut of the section. Subsection 37(2) states:

"Where Ontario Hydro proposes to change any of its rates or charges for any customer, it shall submit the proposal to the minister not less than eight months before the date that the change is proposed to come into effect and the minister shall refer the proposal to the board."

The next subsection is also important:

"Where a proposal is referred to the board by the minister pursuant to subsection (2), the board forthwith by public advertisement shall give at least 20 days notice of and shall hold a public hearing with respect to the proposal and shall make a report or an interim report thereon to the minister."

The important thing to notice is that if Hydro wishes to change its rates, not to continue its rates--including, I guess, decreasing its rates; in any event, the experience has been increases, as in most walks of life--it must make a proposal to the minister. The minister shall send it on to the energy board, and the energy board shall report to the minister. We do not report to the board of directors; we report to the minister.

The origin of section 37 was in Task Force Hydro, a group of people who studied how the government should relate to Hydro. The task force report is

very interesting, although I suspect it is quite out of date. Then there was an advisory committee on energy. It struggled with the idea that somebody should look at how Hydro was doing things. Should it be reviewed or should its rates be fixed and regulated? That was the issue at the time. One of the other concerns was whether it was wrong for one board to veto the decision of another board when both boards were appointed by the government.

That was one of the concerns identified in those reports. Since that time we have had legislation such as the environmental assessment legislation, wherein the Environmental Assessment Board clearly has the power to veto the decision of another board. I am not taking a position on that; I am only pointing out to you some of the history of the legislation. By reading those two reports your staff can understand the background of the legislation as it was viewed at that time.

There are two main matters that the minister may ask the board to do. First, he may ask us to look at the rate proposal, which he does in a letter. The proposal does not automatically come to us; it comes to us in the form of a letter that governs exactly what we may and may not do. Although section 37 is there, it takes a letter of reference from the minister as the conduit to get the matter to the board.

The minister may refer other matters to the board. Mr. Andrewes and Mr. Ashe would know better whether there have been such references. I cannot tell you. I know we get references frequently from His Honour that we act under, but I cannot remember whether there were any others.

Mr. Ashe: There was one on costing and price figures.

Mr. Macaulay: Yes, we had a very involved one some years ago on marginal costing of electricity.

The review is limited by the minister's terms of reference. Historically, the minister sends us a letter and makes it perfectly clear that there are some things we cannot look at, and we do not look at them.

9:50 a.m.

The third point is that a public hearing is required.

Fourth, we have no jurisdiction between references. With gas companies we do have jurisdiction between references or hearings. We can call them in. We can require them to keep their accounts according to a certain methodology so that it is clearly understood by everyone how they are keeping their accounts, whether they are bringing about intergenerational equity or whatever. With Hydro our authority arises only upon receipt of the letter from the minister. Our authority is exhausted when we report to the minister, and we must report to him on August 31 each year. We have jurisdiction only during that period and not between references, not during the year.

Pages 5 and 6 of my brief contain the sections of the Ontario Energy Board Act that I have already set out for you. I hope these sections will be of some assistance to your staff at a later time, although I am sure they have a copy of the act itself.

The third slide is about the rate-setting process. I will go through it very quickly, mentioning first the timing of the hearing and the board's report. The reference, the proposal and the supporting material are normally

received by us about April 15. I expect we will receive it within a few days. We have the hearing in June and have to report no later than August 31. Those are the three crucial dates.

These dates do not leave very much time. They sound as if they leave a lot of time, but there are up to 7,000 pages of material and up to several million figures. It is a very exhausting period. I have discussed with Ontario Hydro's people whether anything can be done about it. Of course, they have a tremendous amount of material to gather together before they decide to fix the rate; then they send the material over to us. It just does not leave us very much time. Our suggestion has been that some of these matters could be broken down during the year and some matters could be looked at on a more continuous basis. Then we would not have to do so much all at one time. It might be helpful; I do not know.

The major dates are set out under the heading "Ontario Hydro's Rate-Setting Process." The submission comes in on April 15 or thereabouts. During May and June all the interveners--the public and others who are concerned--look at the material, get ready for the hearing during May and send in what are known as interrogatories. These are written questions to Ontario Hydro saying, "We do not understand what you mean by this," "We would like that amplified" or whatever. We have the hearing in June; it usually lasts three to four weeks. July and August are spent sifting through the material, trying to understand it thoroughly, getting back to Hydro and preparing our recommendations.

While we are preparing our report from July to September, Hydro is preparing its budget. It is going through its budget process, as it calls it. I would like this to be understood by you: The figures we use to set our recommendations are not the figures Hydro uses to fix its rate. Its figures are much more updated. It supplies all the updated material while the hearing is in process and yet, when it comes to make its final argument--this is not a criticism; it is an observation--it says, "We want to remind you that you are to make your report on the material we filed on April 15 and not on the most recent material we have supplied to you."

With great respect and no criticism to Hydro, it puts us in a hell of a position. We know that what we have been told is not the correct information, because it has been updated; it is an iterative process. Yet we are expected to make our recommendations based on outdated information. It is an area in which we ought to try to make some adjustments.

I am not criticizing Hydro, because we live in a very dynamic society and the moment something is known, it is out of date. Ontario Hydro has this problem of dealing with millions of figures and many concepts that are out of date very quickly. The Canadian dollar is a classic example. You have a pretty good fix on it on Tuesday morning, but if you have not read it on Tuesday afternoon, you may be out as much as \$30 million for Hydro. Every cent that the Canadian dollar drifts off the American dollar is worth about \$29 million in terms of Ontario Hydro's expenditures and revenues. Keeping up to date is a very difficult thing.

Hydro works on its budget process from July to September. In October, it finalizes its decision on the rate. There have been exceptions, as you know, but normally that is how it is done. Hydro fixes its rate and then in January comes out with its actual budget for the year. I am going to make some comments about that.

Slide 4, or your page 8, is our effort to compare regulation of a gas utility with what is done with Ontario Hydro. The first bullet on the page shows that with a private corporation, a gas utility, there are shareholders and customers. If management makes what we think is an unwise decision, we can charge that against the shareholder and not against the customer. We have done this on a number of occasions. With Hydro not having shareholders, the whole cost is paid by the customer.

The second major difference between Hydro and the gas utilities is that we fix the rate for the gas utilities. After hearing the evidence, we decide the expenditures the gas utilities should make that should go in the rate base and upon which they can earn a return that goes into the rates. With Hydro, we make a recommendation that may or may not be followed. In any event, we make a recommendation to the minister. I believe he then passes it on to Ontario Hydro, and it usually tells us soon after that why it is not going to follow what we have proposed or that it is going to. I will come to that in a moment.

The third major difference is that we have no time restriction with reference to a gas company; therefore, we do not end up absolutely breathless and inundated with figures that we cannot properly or perhaps are unable to digest within the time limit. It is a much more civilized procedure, if I may use that phrase. There are no guns that go off to start you on the race, and there are no guns to go off to say you have to have your report in by a fixed time.

On the other hand, I am not sure those kinds of incentives are not a wise thing. We hear about 90 cases a year. It would be very difficult for us to conduct our business if all cases had to be finished or started on a certain date and we had little time to digest the material before the case started.

10 a.m.

Pierre Genest makes fun of a phrase I originated many years ago: We have the "dump and run" theory with Hydro. Hydro dumps the material and waits for us to run after it to examine it. We call it the dump and run theory. Hydro does not come into the box to testify about all its material. It files up to 12 or 14 volumes ahead of time, containing thousands of pages. In the six weeks we are expected to understand all those pages, so that when Hydro puts its witnesses in effect in the box--we do not have anything as formal as a box, nor would you want to with an administrative board--they simply are qualified. They are asked, "What is your name?", "What is your background?" and "Have you any changes you want to make to the written material?" They usually say no, or they may make a modest change. After that, the examination starts. You have to have done your homework or it is all over. You have to have understood it all before it starts at least to understand what they are going to say.

This is one of the great problems of the limited amount of time. It is not until April 15 that we can be sure we should call witnesses to start on June 1. If you want to call international or national people to help the board get a broad view of what it is hearing, you often cannot get anybody with six weeks' notice. They have other obligations. They are not available. The shortness of time therefore is involved. I am not suggesting Hydro can escape it. I have been there only a year and a half and there have been a lot of changes in that time. We have improved it greatly, but we have further to go. In any event, there is a limited time to report.

The second matter concerns wholesale rates. With Hydro, we look at only the wholesale rate; that is, the rate Hydro charges the municipalities. We do not look at what it charges the rural areas. We do look at the wholesale rate that goes to some of the major industrial customers, but we do not look at the end rate.

Today we are in a market-related economy where the rate that one form of industry charges to a consumer is extremely important. Competition today is very important. This is what the western accord, which was entered into recently and which we have had a very long hearing on, has involved. I am sure you are aware of the significance of the demand side of a market-driven energy corporation.

We look at only the wholesale rates charged by Ontario Hydro. For the gas companies, we fix the retail rate. We not only fix the rate, but we also tell them what the conditions of service ought to be. It is one thing to fix a rate, but if somebody has to supply the gas only every four years at midnight, it is not much use to you. You not only have to fix the rates; you also have to fix the conditions of service.

The experience in Canada and in the United States has been that those who fix the rates should have some responsibility for the capital expenditures that are going to be made. Most observers view the way it is done in Alberta as not the best way to do it: one board fixes the capital expenditures and another board fixes the rates.

Third, system expansion or capital expenditures are normally excluded in the letter we get from the ministry. Other things are excluded, but that has been a major exclusion for four or five years. That is basically because four or five years ago the matter was looked at very clearly by the government, by a legislative committee and I think even by the board, and major commitments were made. Only now are we entering a new vestibule of life where the commitments for the future are going to have to be reviewed. That is what you ladies and gentlemen are doing at the moment, trying to weigh the supply side against the demand side.

Fourth, we focus on the rate year. One of the problems with section 37 is that we can look only at that year. With a gas company, we will review from time to time what has been decided in the past to make sure it is current and appropriate under today's economic factors.

Anybody who is familiar with the Petrosar-Union Gas problem knows that today, five to six years after that large and improvident contract was entered into, one which is costing Union Gas and its customers a great deal of money, we are still working on whether and to what extent that should be shared between the shareholders and the customers. We do that with the gas companies; we are constantly monitoring and updating.

I am not advocating regulation. I may even suggest later on that we might drop section 37 of the Ontario Energy Board Act. You are a well-organized committee and you have a good staff, but I do not know whether you have the time to go into the things we go into in a hearing.

If the presidents and directors of gas companies were to come before you, they would tell you that regulation of gas companies has not emasculated their managerial duties. They would say they think regulation in Ontario has been fair, it has been good for the industry and they are pleased with it. I have heard people say that if the government or anybody starts regulating or

interfering with the directors of Ontario Hydro, they will be emasculated. I do not think that is right. It certainly has not been true in the United States. We fix the gas companies' rates. We tell them, "This is in the rate base," "That is not in the rate base," "That has been in and you have to take it out," or whatever the case may be.

Perhaps it was because I asked them that they thought it was politic to say it is okay, but others have asked them too. You might be told that, but perhaps you would like to find out on your own by calling in the three presidents. Call them in and find out in a few minutes, or get them to file something with you.

Under section 37 we can deal only with the year in question. I want to remind you that in that year, Hydro can embark on policies that will reflect on the next year. The policies do not affect this year's rate and therefore are beyond our purview, but when we get to the next year the decision has already been made. It has its problems. I do not think Hydro is particularly happy with it. Maybe it is; maybe it is not. No doubt Hydro is coming back here; I hope its representatives will see a transcript of what I am saying and will have an opportunity to comment.

There is a last point under "Restricted Focus." We have the authority, and we exercise it, to tell the gas companies, "You should have a certain amount of debt and a certain amount of equity." Equity is more expensive than debt for a number of reasons. Debt is deductible before you pay income tax; dividends are not. There are a number of problems which I am sure you are all familiar with. We have the authority, and we tell them they should have their equity at a certain level and not greater than that; otherwise, it is costing the customer more money than it should.

We have no such authority with reference to Ontario Hydro. As you will see in a moment, last year we wanted Hydro to have its net revenue at a certain level, which would have increased its equity and reduced its debt. Hydro found that unacceptable. It has to look at factors that perhaps do not enter our minds. It also looks at evidence that comes after our case is closed.

If you look at the rest of this slide, you will see "Monitoring." We follow the performance of the gas companies very closely on our computer. On occasion we require them to come in, and we say: "You are overearning. If you are overearning, you are charging the customers too much money." They would rather we did not do it, but they are very co-operative. Our computers interchange information with theirs, and we are able to follow them very closely. They know we are following them. I believe they think it is good for them.

We do not have that exchange with Ontario Hydro, because we have authority during only a very limited time, from April to the end of August. We spend all our time in the hearing process.

That is what monitoring is, and it is very important. It is one thing to say this should be done; it is another thing to follow it up and make sure it is done.

10:10 a.m.

With the gas companies, we have a uniform system of accounts. In co-operation with them, we have worked out how they shall account for their money and how they keep track of it. This is very important. If you look at depreciation or at certain headings, you know how they all account for their money.

Hydro has a much more flexible system. It is constantly putting in new and substantial capital assets. How you charge those capital assets between today and tomorrow is called intergenerational equity: you can dump it all on your kids in the future. That makes management look great today, but it is an awful load for the kids in the future. They will have their own problems; they will make their own mistakes, and there is no reason they should have to pay for ours.

I am not suggesting anybody does that openly; in fact, Hydro's accounting policies are supported by many accounting practices. According to accounting practices, it is okay to do it this way, but it is also okay to do it that way. It is more conservative to do it this way, but it is perfectly okay to do it that way; however, "that way" may lead to intergenerational inequity.

We do not let the gas companies do it. We believe today's burdens should be borne by today's customers. We do not have any say with Hydro. We just make recommendations.

At the bottom of this slide are some words that explain the difference between rate base/rate of return and how Hydro does its business. I have taken pages 9, 10 and 11 of the brief to explain it. It is really boring and I will not go through it with you. You have to be an accountant and have a very audible alarm clock. However, there for your staff to read, in our own words, is the difference between how we regulate a gas company and how we observe Hydro.

You will be glad to know I am nearly finished. I am sorry I have been so long.

Mrs. Grier: You are much shorter than I expected.

Mr. Macaulay: Turning to slide 5, the Ontario Energy Board recommendations to the minister are quite brief. We recommend what the revenue requirement ought to be. That is the bottom line. That is what you and your wife talk about at the end of the year or each week when you are working out your budget. We talk to the minister about that in our report. We sometimes talk about rate design. If Hydro is going to change its rates, we like to make a comment to make sure the change is equitable and people are treated fairly. That is a little different from the intergenerational equity matter, which is really an accounting matter.

If you have a heavy water plant and you shove it off for 40 years, nobody will pay for it today; it will be paid for some time in the future in the hope there will be use for that equipment. I am not saying that is being done, although unquestionably some of it is being done. Some plants that may not be brought on stream in the future should be written off, perhaps at present, depreciated much more heavily or amortized much more heavily than is the case at present. We will be going into that. There is no point in rehearing a hearing or anticipating it.

We talk about the revenue requirement. Sometimes we talk about rate design. Sometimes we say to the minister, "There are some other things you should consider." He has a busy schedule. There are only a certain number of things that can be done in a year, but we have made certain recommendations in addition to the rate matter. They are recommendations we make to the minister, not necessarily to Hydro.

We also make requests to Hydro. We frequently ask Hydro if it will do this kind of report or tell us this next year or whatever. Hydro is usually very co-operative. I should not even use the word "usually." It is co-operative and very open. Sometimes Hydro just says: "Screw it. We're not going to do it." That is okay.

The bottom of this slide shows what happened last year. If you look at page 13, you will see three major columns: column 1, column 2 and column 3, strangely enough. Column 1 is what we said should happen; column 2 shows what Hydro said it would do on September 1 or thereabouts; and column 3 is what it did at the end of the year in doing its budget. We wanted Hydro's net income to be \$500 million. We felt that was important. Hydro said, "We will hold it to \$460 million," but held it to \$330 million. At least, \$330 million is what it is budgeting for.

These may not look like big differences to you or to others, but to us they are big differences. There is not a single item Hydro put in its 1986 budget that followed our recommendation. Not one.

Hydro says, "We accept your recommendations for the purpose of making our rates." It fixes the rate in the fall, but when it comes to deciding how to spend its money, Hydro does not follow our recommendations. Column 3 shows what Hydro did on January 1. I am not being critical, I am simply saying there can be two explanations. One is that the facts changed materially between the time we made our recommendations and Hydro decided how to spend its money. Alternatively, Hydro simply rejected our view.

One of our major concerns is operations, maintenance and administration. That is where private industry has to cut the money or lose the job. You have three choices: borrow the money, get it in rates or cut your costs. There are not four choices, there are three. Last year we said to Hydro, "Please try to hold your costs at \$970 million." On September 1, Hydro said, "We will hold our costs at \$970 million," but when its budget was struck at the beginning of the year the cost was \$46 million more. That may not seem like a lot of money. You people deal with a great many very important matters. It is up to you to decide, but it was an important variation to us.

This time we want to ask Hydro why it happened. There may be many explanations. I am just commenting that you should not let Hydro come here and tell you, "We listen to what the energy board says." This is for 1986. I have not gone back to 1985, 1984, 1983 or other years, but I suspect that, out of necessity or whatever, Hydro has not followed our recommendations. It does not have to. Who are we? They are simply recommendations. I want you to remember when Hydro comes back that I have said no doubt it has some excellent reasons. This year I would like to find out the reason for those variations.

The net income is terribly important to us. That is the equity for the gas companies. The better the equity, the lower the borrowing in the US or wherever, although they have not been borrowing in the US recently. The interest rates they have to pay are a bit lower and so on.

When Hydro comes back, and I guess it will come back, it will have an explanation for this slide. That is all I can say. We have put some calculations at the bottom for those people at Hydro who may want to know how we arrived at certain figures.

10:20 a.m.

Now I really am finished. Slide 6 tells you that we send out a public notice. The public has an opportunity to come to the hearing and intervene. The public is thoughtfully looked after by Hydro. Hydro tries to be as helpful as it can be to the interveners. I have used five bullets to set out the normal interveners. They are the industrial customers, the large consumers of gas. They belong to associations and the associations are there. The municipalities are also there through the Ontario Municipal Electric Association, an association to which they belong. There are public interest groups. Mr. Poch and others who represent public interest groups come to make various representations. There are also concerned citizens.

Our regret is that there are not as many concerned citizens as we would like to see there. We get many letters, but it is understandable. It is expensive and complicated to be there. There are thousands of pages of material to be read. You have to be there all the time, because it moves very quickly. We cannot be going back just to please one person. We would love to, but there is not the time. We get a lot of letters of concern and so forth.

Mr. Chairman, that is about what you proposed I should cover. I am sorry to have taken 55 minutes to do what I thought would take 30. You have been a kind adviser to me over the years and you know that is not new. You have had to suffer through a lot of long discussions with me.

Mr. Chairman: Thank you, Mr. Macaulay.

Mr. Ashe: I think he was quite short.

Mr. Macaulay: Does the silence mean I can go home now?

Mr. Chairman: No, stay. I am getting my list up to date.

Mr. Cureatz: Mr. Macaulay, I enjoyed your presentation and your specific reference to Hansard in past days. I will be frantically pulling out those old Hansards and reading them at my leisure over the summer holidays. No doubt I will be thoroughly indoctrinated in all that took place in your past, as you said, vignettes.

Mr. Ashe: Bullshit.

Mr. Cureatz: That goes for the member for Durham West (Mr. Ashe). We will hear what contribution he has to make.

Mr. Ashe: I mean that you are going to pull them out and read them over the holidays. That is where the remark comes from.

Mr. Cureatz: You indicated that your position here is not adversarial, which I respect very much. On the other hand I recognized, and am curious whether other members of the committee recognized, a degree of inflection of strong questioning in your voice about the failure of Ontario Hydro to recognize properly the Ontario Energy Board's attempt to explain to Hydro what it feels rate increases or capital expenditures should or should not be. Would you feel more comfortable if there were a stricter adherence by Ontario Hydro to your board's recommendations?

Mr. Macaulay: I do not think Hydro has failed to recognize them. No doubt it has had reasons of its own for following its own course, which has not been parallel to ours on all occasions. I know some Hydro officials have been here. I asked our staff to try to find where Hydro has said that in 95

per cent or whatever percentage of cases it has accepted our recommendations. I can only say, looking at last year, those items were not recognized. I have not gone back and analysed other years.

Hydro looks at what we recommend and says, "For rate-making purposes, we adopt what you have recommended." Very often, Hydro fixes the rate based upon what we have recommended, but when it comes to spend its budget in January, it has not recognized what we have recommended. The differences have to be made up on some other account in some other year. In our particular recommendation last year--and I am sorry, Mr. Cureatz, to go on--we were concerned that Hydro give a clear example of cutting back on its overhead or at least keeping it the same. It did not do that and we were disappointed. Hydro may have reasons; I am sure it will describe the reasons to us in the upcoming hearing. That is about all I can say. They are recommendations.

Mr. Cureatz: I am not sure what you are saying. Would you not feel better if Hydro were adhering to your recommendations?

Mr. Macaulay: We believe in what we said. Therefore, I have to answer yes.

Mr. Cureatz: Great. I am interested in the length of the committee hearings. I hoped the number of interested groups in attendance would be greater. Do you feel there should be a budget struck for such groups so that funds would be made available for monitoring?

Mr. Macaulay: We are getting into funding, are we not?

Mr. Cureatz: That is right. Someone is going to ask about it eventually.

Mr. Macaulay: Right. You will see that last year our board sat on this very issue. We published a 400-page or 500-page report on funding and costs.

Mr. Cureatz: I will read that over the summer too.

Mr. Macaulay: I do not encourage you to do it. We believe funding is desirable and we believe cost-granting is desirable. There are many people much opposed to it. When we went to court on a case, the Divisional Court said we had no authority to fund under the legislation. We have no authority. The Supreme Court of Ontario has said that clearly. It has also said that to the Environmental Assessment Board. The Ministry of the Environment has been making ad hoc amounts available to try to help. I know that you, Mrs. Grier, have been very involved in this, much to your credit, but it comes too little and too late.

Look, let me put it another way. I used to say there is no point telling me you want me to play the piano. I have never taken a lesson. Give me at least a couple of months' notice. I cannot just go up on the stage and play a piano. Neither can you go into an important case unless you have the money in advance, you know what you can do and you have some opportunity to take a meaningful role.

In answer to your question, we have recommended it. Whether the government feels it is appropriate is another question. I will tell you that when I went to a meeting with Ontario Hydro, its people said: "Macaulay, what are you doing? You are trying to create a cottage industry for lawyers." There are two points of view. There is up and there is down.

Mr. Haggerty: That is right.

Mr. Macaulay: Sure it is. Having heard 40 or 50 public interest groups as well as companies and others, nine of us, the whole board, sat because I wanted all members to be committed to what we were proposing. We published a report last year. We do issue costs at the end under very strict rules. Where we feel somebody has made a useful contribution and has led us to a better understanding of the hearing, we will provide costs. There are certain kinds of cases where we cannot, however. In any event, I do not want to take any more of your time on it.

Mr. Cureatz: There may be a feeling among committee members that, notwithstanding the kind of effort Ontario Hydro makes in explaining its position to the general public and notwithstanding the options available, there quite often is a taintedness to its approach because whatever the general public means out there--

Mr. Macaulay: What do you mean "tainted"? T'ain't yours and t'ain't mine?

Mr. Cureatz: That is right, exactly. The problem is that there is bias from Ontario Hydro's point of view. Can you envision your board expanding its role?

Mr. Macaulay: Look, people would say ours is tainted too. There is a very senior editorial writer on one of the newspapers who does financial columns. He says: "All you guys do is give the gas companies exactly what they want. You are in their pocket." I have told him, in terms I will not use with Mrs. Grier and her colleagues here, what I think of him. We are viewed as being tainted too. I know I am being a little flippant--I say "t'ain't yours and t'ain't mine"--but any view is subject to a certain amount of criticism.

10:30 a.m.

After all, Hydro has a very big mandate. It has been in business since 1905. It is dedicated to what it is doing and thinks it does it well. The world thinks it does it well too. I can understand its trying to sell its programs. This is one of its problems. At the moment it is oriented towards the supply side of electricity, and this year in our hearing we are going to concentrate a little on the demand side.

Mrs. Grier: Let me pick up on your last statement. As you said, what we have been talking about is demand versus supply and their planning. I am wondering what role rates play in all this. We have not had any discussion of that.

Mr. Macaulay: They play a very important role. Rates can be an incentive for certain customers to use offpeak and to use in the shoulder period, as it is referred to. Hydro has said to us openly, "If there is any help you can offer to us in this area to help us better understand the relationship of rate to demand, we would be happy to hear it," and our staff is going to present some evidence.

The American experience has been extensive and has shown unquestionably that certain rates will induce certain responses, but you must have an incentive there. Goodwill, good for the country and all that stuff is not enough. You must have a monetary incentive and rates can provide it. It is not the answer to supply, but it is part of the answer.

Mrs. Grier: Given that you have said your jurisdiction is limited to what the minister says in his reference to you, where does your jurisdiction come from to get into an examination of the relationship of demand and supply and to question Hydro's rates in the context of looking at demands?

Mr. Macaulay: That is a very good question and it deserves a thoughtful answer. We deal only with wholesale rates. We are going to try to see whether there is not evidence out there that says you can, by changing the rate, encourage people to run their dishwashers after they have gone to bed rather than right after supper, for example. This requires all kinds of expenditures for metering and other observation equipment.

In short, we are going to introduce general evidence that touches on the subject. I do not know exactly what it is going to say. I just know that the people who are going to be called are highly qualified in this area and are conducting some research at the moment to see what the estimated public response would be.

We do not have any authority to deal with end rates, nor are we seeking it. Those are fixed by the municipalities. We have said several times over the years that we thought the ministry should look at how Ontario Hydro works out the fixing of end rates. That is all we said last year, and there was a flood of 200 or 300 form letters sent in to the ministry and the Premier's office stating that we were trying to take over end rates. Just a reading of our report shows we were proposing no such thing, and I repeat it now.

When you get into competitive rates in oil and gas, where Hydro pays no income tax and gas companies can still compete with Hydro, then I think it is fair for all consumers in Ontario to be sure of how rates are fixed. I am not suggesting that we fix them, but somebody should understand the criteria and the public should have an opportunity to appear before some forum, in front of you or whomever, not regularly to fix them but to understand the criteria and how you get into the club.

There was a tremendous reaction that we were trying to take over the fixing of end rates and destroy accountability of the municipalities. There was no such thing. It was the third time we had recommended it. We are not going to recommend it again. You blow the bugle so many times and if not a god-damned thing happens, you put your bugle away.

Mrs. Grier: Where does your mandate come from?

Mr. Macaulay: Section 37.

Mrs. Grier: It is limited to that.

Mr. Macaulay: That is right. The case we are going to hear this year is limited to 1987 rates. That is what the section says. That is a limited area, but then the minister sends us his letter of reference and he may cut some things out of that, depending on the government's position at that time on certain matters. You are going into the demand and supply matter at the moment.

I have been following carefully the recommendations of your staff and your transcripts, although I have to say they are awfully slow coming out. Ours come out the same day. Transcripts that come out two weeks later frankly are not very useful; they are no use to me at all. I have to have somebody here taking notes. It is expensive. I have to have somebody here taking notes

to see what you are saying, because it is important for us to know how you as members and as a committee as a whole feel about these matters. The transcripts of two weeks ago are not available yet, are they George?

Mr. Cooke: I do not believe so.

Mr. Haggerty: The committee has not had them either.

Mrs. Grier: We have not seen any either.

Mr. Macaulay: I know that. You ought to have them. We get them within four hours. If we do not get them within four hours, we get somebody else.

Mr. Spell: At the end of your response to Mr. Cureatz's question you mentioned that you would be concentrating more on the demand side next time. Mrs. Grier was asking when that was coming in your mandate. I am interested in the way you will be looking at the demand side.

Mr. Macaulay: I am sorry if I left that impression. I started to answer Mrs. Grier. We will likely not look at demand or supply. Historically, for five or six years the letter from the minister has excluded our looking at the supply side. In the fixing of rates we have required certain research to be conducted and we would like to hear it. Our research was into whether on the demand side and with rate creativity you can influence the forward planning of Ontario Hydro. It is very dicey whether that is clearly within our mandate for this coming year. George, do you have copies of the letter of reference?

Mr. Cooke: I have the letter from last year.

Mr. Macaulay: I am going to hand out to you a copy of the letter of reference of last year from the minister. You will see for yourself what he says to us. I will not go through it and will not ask you to do it now, but at some later time you might like to look at it.

Mrs. Grier: The signatory is here, so maybe he can explain it to us.

Mr. Macaulay: He can do that on another occasion, I am sure. I have no criticism of the letter; I am just talking about the process. As far as concentrating on the demand side is concerned, we are not going to be concentrating on anything. We are looking at rates. Hydro is proposing five or six incentive rates, which it put into place last year. It is constantly working with incentive rates. Since it is working with incentive rates, we are anxious to have a look at them and very anxious to encourage Hydro in every way possible to encourage people to take in the shoulder period and off peak, or to take in a different way in the future that will allow Hydro to try to cut down on immense capital expenditures that are made in a major position for one of two reasons: first, because the marginal costs are equal to or less than the average costs or, alternatively, because there is nobody to tell them that that is what they have to do.

The expense in the United States is that when the marginal costs are above the average costs, the utilities have turned away from the supply side to the demand side--either that or the regulator has required them to do so.

Mr. McGuigan: I am interested in your reference to Union Gas having contracted quite a supply of--I do not know whether it is called artificial gas--

Mr. Macaulay: It is manufactured gas.

10:40 a.m.

Mr. McGuigan: Manufactured gas. In the meantime, rates were--

Mr. Macaulay: "Synthetic" is the word.

Mr. McGuigan: "Synthetic" is the word I was trying to get. In the meantime, the supply of natural gas was there so that the company did not have to use the synthetic gas. Then you assessed that cost to the shareholders rather than to the customers.

Mr. Macaulay: We told the shareholders they had to pick up some of the cost of that because management had made that decision. The shareholders, not the customers, elect management so that they have to take, and I think they willingly do take, some responsibility for management's decisions.

Mr. McGuigan: As a matter of interest, Union Gas renegotiated that with Petrosar.

Mr. Macaulay: It has entered into a new agreement to share the premium as it arises. That is coming up before us. I hope you will forgive me, but I think it would be inappropriate for me to comment on it.

Mr. McGuigan: I was not going to question you on that. How do you separate it between the customer and the shareholder? How do you keep management from shifting those costs?

Mr. Macaulay: We look very closely at how costs are allocated between the present and the future and at how they are allocated between customers. It is a judgement call. Somebody else may have better judgement than we have on it, but we have been in the business for 25 years, and the gas companies feel on the whole that we have been fair about it. It is a judgement call.

Mr. McGuigan: It is. I have always asked myself how you can be sure over the long run that the shareholders do not put that over to the customer. I come from the biased thinking that the customer finally pays in the end anyway, regardless of how you handle it.

Mr. Macaulay: With great respect to you, and I do have great respect for you, in the Petrosar case that is not so. A substantial portion of that contract, which I called improvident--I did not say it was unwise or imprudent. There is a difference between "imprudent" and "improvident." "Improvident," as I understand it, means it has turned out not to be economically a good thing. "Imprudent" means they should not have gone into it or should have gone into it. We have to look at the question now that this agreement has been reached.

Mr. McGuigan: It looked like a good deal at the time.

Mr. Macaulay: Yes. Everybody was talking about gas rationing and about how you were going to be without gas. We would have burnouts and blackouts and brownouts and every other kind of out. It looked like a good thing to do at the time and it was entered into for two reasons: first, to make some money for the shareholders, and second, to supply the customers. Up to this time our board has felt that they ought to share in some fashion the

premium that is paid to have had that. It is like life insurance in a sense. You buy it but you do not want to die the next day.

Mr. McGuigan: In most cases.

Mr. Macaulay: In most cases. You and I may be the exception.

Mr. McGuigan: You are satisfied that this actually does happen, that the two sides of the business are separated?

Mr. Macaulay: Yes, I am. I would feel very guilty if I were to say to you otherwise, because it is our job to see that the customers are not loaded with costs that ought to be borne by the shareholders. I remember that on one occasion we simply said that a number of things, such as airplane costs--just to pick on that as a small example--are not to be borne by the customers. We look to see that the salaries of presidents and others are within line. We make sure that if they are conducting side businesses--and this is why we have been proposing different legislation, and I think the government has indicated it feels supportive of that--the customer is not going to end up paying while the shareholder gets the benefit. We look at them very carefully.

Mr. McGuigan: I asked that question because I am old enough to remember the Wartime Prices and Trade Board's regulations. You said earlier that if you asked the heads of the gas companies or Hydro whether they liked--

Mr. Macaulay: I did not say Hydro.

Mr. McGuigan: Oh, okay. If you asked the gas companies whether they liked regulation, they would say yes.

Mr. Macaulay: I think they would accept it. I do not think I have ever heard them complain about it.

Mr. McGuigan: To go back to the wartime price and trade regulations, although people in business were riled about them, they were sorry to see them removed.

Mr. Macaulay: There were shortages in those days.

Mr. McGuigan: People presumed that prices would go up when the controls were removed, but they went down. What I am saying is that regulations give the appearance of protecting the customers, but I am not always sure they do.

Mr. Macaulay: We try to, anyhow. We do our best. When you have a monopoly and there is no competition, the tendency of human nature is to price your product at what the market will bear. Regulation is designed to put the price at what is fair.

Mr. McGuigan: The other side of that is that when you have competition, it will do what regulations are supposed to do.

Mr. Macaulay: Exactly, but if there is no competition, as there is not when you issue gas franchises, it is terribly wasteful to have one gas company go up on one side of the street and another go up on the other side of the street. Therefore, conceptually, for years we have issued a monopoly franchise in a specific area. Then, since there is no competition, we make

sure to the best of our ability that the rates charged to the customers in that area are not going to gouge them. We make sure the rates are fair, that customers get good quality for the buck, a big bang for the buck.

Mr. McGuigan: I remember that someone years ago--I think it was a Hydro employee--said he could always tell when Hydro was going to apply for new rate increases because for several months prior to that he would get all sorts of overtime.

It does not bear that out on page 13, where you recommended \$970 million and Hydro responded that it was going to spend \$970 million. In actual fact, it spent \$1,016,000,000.

Mr. Macaulay: No. In actual fact it intends to spend \$1,016,000,000. This is Hydro's actual budget, but we are only halfway through the year at the moment. This is 1986.

Mr. McGuigan: Oh, I see.

Mr. Macaulay: Hydro has not spent it yet. It is in the process of doing it. That is what it is budgeting.

Mr. McGuigan: In a sense, that would reduce Hydro's profits by the difference between those two, would it not?

Mr. Macaulay: That is one of the areas. There are other changes, such as in revenue. The foreign exchange is not as favourable as was predicted, and that will cost money. Hydro buys coal and other supplies in the United States and has depoting in the United States. The level of the Canadian dollar will affect how much money it has to pay out. The higher our dollar is, the less Hydro has to pay across the border.

Mr. McGuigan: That is on the fuel item, but what about operation, maintenance and administration?

Mr. Macaulay: Oh, yes. Hydro may buy supplies there other than fuel, but I cannot remember at the moment.

Mr. McGuigan: Turning to the results, you were talking about intergenerational equity. Your quarrel with \$330 million as compared to \$500 million is that Hydro is putting \$170 million into the future rather than paying for it.

Mr. Macaulay: That is one way of looking at net income. Net income pays your debt down, puts more of your own sweat and savings into the family farm and means less reliance on the bank.

Mr. McGuigan: I am glad we do not worry about equity being more expensive than borrowing.

10:50 a.m.

Mr. Macaulay: The equity here is earned out of net income; it is not raised through the sale of stock. Therefore, equity for Hydro is a cheaper form of investment than debt, whereas it is quite the reverse in a gas company.

Mr. McGuigan: The bottom line is that you are satisfied the regulations are properly carried out and they do charge the appropriate rates.

Mr. Macaulay: Yes, with the gas companies. I feel, as with everything, that there are blemishes on every copy book, but on the whole, regulation of the gas industry has worked well in Ontario. I suspect the gas companies would tell you that.

Mr. Chairman: Mr. Macaulay, you mentioned that in this new vestibule of light that we find ourselves in--

Mr. Macaulay: Was that one of mine?

Mr. Chairman: It was one of your direct quotes. I want to assure you I am not bound by any previous offices I might have held in previous vestibules when I pose this question. You noted that you have no jurisdiction between the references on the Hydro rate situation.

Mr. Macaulay: Yes.

Mr. Chairman: I conclude from that that there is no ongoing monitoring.

Mr. Macaulay: That is correct.

Mr. Chairman: That is as opposed to the gas--

Mr. Macaulay: Excuse me. It does not mean that our staff will not from time to time meet with the Hydro staff to get ready, sort of at the winter break, for the upcoming year. The staff may start to, but we have no official authority.

Mr. Chairman: That is in direct contrast to the situation of gas utilities, where you do have ongoing monitoring.

Mr. Macaulay: Yes, it is.

Mr. Chairman: The Ministry of Energy in its annual report talked about your role as one of surveillance, which conjures up almost enforcement. Do you see yourself in that kind of role?

Mr. Macaulay: No, we have no such authority. We have some responsibility between April 15 and August 31, and that is to hold a hearing and make a report. We have never tried to go outside that. I do not think we have any authority to go outside that. I suspect Hydro would resist if we tried to go outside that. From August 31 to April 15 we have no authority to ask or require Hydro to do anything at all.

Mr. Chairman: I think the reference was made specifically to the gas utilities.

Mr. Macaulay: With the gas companies, oh, yes. I mentioned to you, Mr. Chairman, that our computers are tied in with theirs. Their information comes to us on a monthly general form. We have worked out with them what we want to know. We do all kinds of modelling to try to decide whether they are overearning, underearning, why and where it is. We call them in on a very regular basis and discuss matters with them. If necessary, we have a hearing.

Mr. Chairman: You are in a position to enforce the decisions of the board as they are spelled out in the report.

Mr. Macaulay: With reference to gas, yes. I think we do it as much by moral suasion as by anything else. We have the authority to file any orders we make with the Supreme Court and have them enforced as an order of the Supreme Court. That is a very cumbersome way to do it. When the gas utilities know that next year we have the authority to limit their rate of return, and therefore their return on equity and so on, as in the relationship of the Bank of Canada with the chartered banks, it is called moral suasion.

Mr. Ashe: Mr. Macaulay, I am glad to see that in all the material we have in front of us, with the exception of the chairman's letter to you, you are still called Robert W. Macaulay, QC.

Mr. Macaulay: Yes, I am. I am quite proud of that.

Mr. Ashe: It is the Queen's counsel designation that I am making reference to.

Mr. Macaulay: I understand that. I understand I still have it.

Mr. Ashe: You made reference to the fact that Ontario Hydro is undoubtedly going to respond to some of the points you are making today in its summation later in the week. There is one that I presume it will qualify for the benefit of all members of the committee. It relates to the percentages, if you will, of the recommendations that it has acted on that have come from the board. It is my understanding that Hydro was saying that on the actual rate recommendation it has substantially followed the recommendation, and on a cumulative basis it is practically right on. Undoubtedly, as you and I both know and as indicated in your summary, there is a lot more in your recommendations than just, "We recommend a four per cent increase," or whatever the case may be. That should be clarified.

Mr. Macaulay: Yes. Early last year, Ontario Hydro announced the rate would be 3.6 per cent. We recommended that the rate be 4.9 per cent so that this year Hydro would not have to dingle around and have it uneven. We wanted a more stable rate. Hydro picked it up. It increased the rate when it read our report or perhaps in response to the economic situation at the time. In any event, in the fall it raised the rate to four per cent. It has stuck with four per cent. Whether it would have picked four per cent for December when it fixed its budget, I do not know.

I believe Ontario Hydro has to tell the municipalities--you two gentlemen would know better than anybody else here--60 days before the start of the year what the wholesale rate is going to be. Although it does not fix its budget at that time, it has to tell the municipalities what the wholesale rate is going to be. Later on it fixes its budget, but based on its budget it might never have fixed the wholesale rate at that level. This is why the system, it seems to me as a lawyer, is out of sync.

Mr. Ashe: Mr. Macaulay, you were talking about how the board has to react to Hydro's dumping all the material on or about April 15 for your final recommendation on, even though things change as the year goes on. Do you feel, and is it feasible from the point of view of the board's handling of all the information, that your mandate should be changed to allow you to make your final recommendation based on the most up-to-date material available?

Mr. Macaulay: It could be that, Mr. Ashe. It is a very wise question. I have not really thought about it. We are told repeatedly by Hydro, and we know ourselves, that we must base our recommendations on the material

that is filed on April 14. I am not sure whether we could do it on the most up-to-date material. I have never worked it out with Hydro; I am certainly willing to do so. However, that is not the proposal. The act says "the proposal," and "the proposal" is what you get on April 14 or April 15.

Mr. Ashe: I appreciate the legislation will have to be changed to change that mandate. I wanted to be clear whether you thought it would help or hinder you and the board.

Mr. Macaulay: I do not think it would help or hinder us. What it might do is make our decision somewhat more in parallel with the circumstances under which Ontario Hydro makes its decision in September. We are making our decision on information we get in April that in many cases is already stale. Hydro makes its decision in September on information that is much more up to date even than the stuff we heard, because we stop sitting on the case at the end of June to write our decision. There is all of July, all of August and some of September. Then it comes down to December when Hydro actually fixes its budget.

Maybe Mr. Campbell will tell you I am absolutely wrong, but I suspect that is also the time Hydro would like to fix its rate. That is the time to fix the rate. A good engineer and a good accountant will tell you: "Do not make a commitment until the very end. Make it as late as you can." You make it early for the convenience of the public, but as late as you can for your profession. The time to fix the rate is when you fix the budget. However, the legislation says the municipalities have to have 60 days' notice. I believe it is 60, is it not?

Mr. Cooke: It is 60 days.

Mr. Macaulay: You can see why I travel with George.

Mr. Ashe: That is it. Let George do it.

Mr. Macaulay: Yes, that is right.

11 a.m.

Mr. Ashe: You used the analogy of the board's jurisdiction and how it handles the gas companies--the rate proposals and so on--and compared that with handling Hydro, which is quite a bit different. Considering the ownership and the mandate, do you think they should be treated the same? In other words, with the gas companies you have to look at the shareholders' equity, the return on investment and profit, which in my view is not a dirty word, although it is to some, whereas the mandate of Ontario Hydro is power at cost.

Mr. Macaulay: You are quite right. They are different and their history is so different. Hydro started out as a commission owned by the municipalities, not even owned by the government. Until the 1970s all the municipalities, 300 or 400 of them, showed on their financial statements their share of the paid-for plant in existence. They were very upset when it was thought Ontario Hydro would be turned into a crown corporation. The Ontario Municipal Electric Association retained me as its counsel to give it advice on whether the legislation was legal. The municipalities were very uptight about it.

There is a strong feeling among municipalities and for that matter, when rates are down, on the part of the customers. When rates are up, the big

industrial customers are more concerned. There is a very strong feeling out there about Hydro, what it means, its history and its background.

When I was here a year ago, I was asked whether I felt regulation was appropriate. I said it has been done in various places in the United States and it has worked. It has not been done here for various reasons. If you are going to go into it or even going to think about it, there are two sides to it, so be careful. There are a lot of sensitivities. There is a lot of history and emotion. There are a lot of differences between Hydro and the gas companies. I was not advocating anything. I was just trying to point out the difference between how we do the one and how we do the other.

Mr. Ashe: That is exactly what I wanted to clarify. I know your view on that, but I raised it in case there was some difference in what you were saying.

Mr. Macaulay: I know that Hydro feels quite comfortable before this committee. I have also heard Hydro express that it would rather be here than in front of our board, which I took as a mixed metaphor.

Mr. Ashe: I think it means your people are at it full-time and are somewhat more technically qualified than most of us.

Mr. Macaulay: In any event, I do not mean it as any disfavour to anybody. I know Hydro is comfortable here and I am glad it is. With your consultants, you are developing resources that are very helpful to the province, if you would just get your transcripts out sooner.

Mr. Ashe: That is a different part of the process. I am sure the chairman will take that to heart.

Do you wish to express an opinion? I would appreciate it even if it is a personal opinion rather than board philosophy. Quite regularly, people come in front of this committee to advocate and suggest that all our answers for energy are in the sun, the moon, the wind and the stars. Let us call it the "soft path process." Some of the competitors state hydroelectricity is underpriced and should be substantially increased in price. Do you personally, or on behalf of the board, have a strong view on that either way?

Mr. Macaulay: No, I do not. I know you have listened to the same arguments. As I remember, the Economic Council of Canada in its last report said electrical energy in Ontario is underpriced and the federal government ought to step in and tax it if Ontario will not. Most economists believe there is an area of revenue that is available to the Ontario government that should go to the Ontario government, it having had its credit involved in the establishment of Ontario Hydro. These economists would put on some kind of electricity tax. If that is the case, many economists believe electricity is underpriced.

Many economists also believe that since Ontario Hydro does not pay any corporate taxes and yet is trying to compete with gas companies that do pay taxes, there is either room for tax or room for management improvement. These are opinions I have heard expressed, but I am just passing along to you hand-to-hand a hot potato. I am going to leave it with you, Mr. Ashe. I have no strong view on it, at least not one I am going to discuss here.

Mr. Ashe: I was afraid that would be the answer.

Mr. Snell: What about the declining block structure and the effect on demand, Mr. Macaulay?

Mr. Macaulay: The declining block structure is not thought to be conservation-oriented. For large-volume consumers, it is not thought to be good for peak demand. There are various views about it. As I perceive it, it was designed to encourage people to buy more energy. With the increased consciousness of conservation--mind you, there is a limit to which conservation will carry you. There is a limit beyond which it will not carry you.

Mr. Snell: True. From your experience with witnesses appearing before the board, are there many other jurisdictions using declining block structures that remain in place?

Mr. Macaulay: I think they are quite common.

Mr. Snell: Are they?

Mr. Macaulay: I think so, but I am not sure. I am only now becoming involved with the North American Electric Reliability Council and the American organizations because we are trying to learn from what others have done. In Ontario we are about where they were three years ago, and I am hoping we can avoid the screwups they got into. I hope you can help avoid some of those screwups too. I think you got started in time. I can just tell from the sense of the people who are here that you care.

Mr. McGuigan: I have a supplementary question on declining rates for increasing volume. Does it not make economic sense purely from a cost or business point of view that when you have to put up so many lines and so much capital infrastructure to deliver the item, the people who use the larger volumes should get a declining rate? If you did not give them that declining rate, they would actually be subsidizing other customers. Can you give us your views on that?

Mr. Macaulay: Mr. McGuigan, let us put it this way. If, to supply people with the volumes of energy that are involved in the declining block, you have to build more plant, then I do not think the declining block system is going to help the demand side of moulding the demand for whatever energy, whether it is gas or electricity.

The declining block system is like the dodo; it has served its purpose, it has likely flown its last flight and new approaches are going to have to be made. Once you reach the stage where marginal costs are at the same level as average costs or even below them, you have to be very careful that the utility is not simply creating more supply because that is the easiest route to take. That is one of the problems of the declining block rate. It encourages people to take more power because it is cheaper. That is all I can say. I am sure you have a perspective that it is not a good thing and I am sure there are advocates of the declining block structure. It is less used, but it is still common.

Mr. McGuigan: I agree it is not a system to promote conservation. From the standpoint of people, and I am not of them, who are using large

amounts, do they not have a pretty good argument for a lower rate as concerns the delivery system, the lines and so on?

11:10 a.m.

Mr. Macaulay: They have an argument, but it is like a housewife who says, "I would like to have a pound of tomatoes," and she pays \$X for them per pound, and somebody else comes in and gets eight pounds of tomatoes and he gets a different price. She does not feel the grocery store should have two prices, one for her because that is all she can afford and that is all she can eat, and one for somebody else who eats like a hog. There are advocates on both sides. I have told you my side. I cannot defend it; I can just advocate it, as a nonadvocate.

Mr. Haggerty: In reviewing Hydro's proposed rate increases for the year, you indicated that there was incorrect and outdated information.

Mr. Macaulay: I did not mean incorrect; I meant outdated. It gets outdated very quickly, just as a clock. I have looked at the clock three or four times, but it moves on. I know I should have looked more often, but it moves on. So does our economy; it moves on. It is like a train. It is always on the move.

Mr. Haggerty: With regard to outdated information, the letter of April 11, 1985, from the then Minister of Energy states in section C, "In connection with the policies and practices respecting power costing and rate making, the principles do not require re-examination."

Mr. Macaulay: Which one are you on, sir?

Mr. Haggerty: On section C.

Mr. Macaulay: I suspect that goes back to the marginal cost pricing, does it not? It took 18 months to go through one of the most complicated accounting, costing hearings. I was acting as counsel for AMPCO, the Association of Major Power Consumers in Ontario.

Mr. Haggerty: You were an advocate then, were you?

Mr. Macaulay: Certainly. Look, I have been minister, I have been vice-chairman of Hydro, I have acted for the Ontario Municipal Electric Association, I have acted for AMPCO, I have acted for the province out west to fight the exports and I have acted against the Mackenzie Valley pipeline. I have been in the energy field for 30 years. I am very much at home and I like to think I get hired because of my experience.

Mr. Haggerty: Section D says, "As in previous years, the board shall review and report on the impact of the system expansion program on the proposed rates, however, the system expansion program is excluded from this review."

Mr. Macaulay: What they mean, Mr. Haggerty, is that we should report how it is getting on and what they are doing, but we should not look at the system expansion itself. You are looking at that now. It may be excluded because this committee is looking at it. I suspect we will receive very shortly from the minister a letter that may well exclude what you are looking at, the demand and supply side, which is what you call system expansion.

System expansion involves questions such as how much more plant you need to meet the forecasted load that will be this size, unless you take corrective efforts or try to manipulate, massage, design and mould it. However, with massaging, moulding and incentives, it may be of a different nature. That is what you are looking at and I suspect that may be excluded from our hearing this year.

Mr. Haggerty: In your submission this morning, you mentioned gas utilities and fair rate. Without having all the background information that is required in sections C and D, how do you describe a fair rate for Ontario Hydro? How do you arrive at it?

Mr. Macaulay: We take certain things as given, that the system expansion has been authorized either by this committee or by order in council. Our concern is, how do you account for it? Over what number of years do you depreciate it? If some of the plant is taken out of service, do you write it off right away or over how many years? Do you go on depreciating it as though it will come back, like the sled?

Mr. Haggerty: Regarding the write-off of older plants, some of which you might say have not even been on stream yet--I am talking about the oil ones--are you suggesting there should be a complete write-off instead of depreciation?

Mr. Macaulay: That depends on where you think we are going to go. People who are greatly concerned about acid rain would rather bring back some of the older plants, which are less efficient but nevertheless do not have the side-effect of serious acid rain fallout problems. These are macro decisions you and the government have to make. We cannot make those decisions. We should not be directing Hydro policy.

Mr. Haggerty: Is locked-in power taken into consideration?

Mr. Macaulay: What do you mean by locked-in power?

Mr. Haggerty: At the Bruce nuclear plant there is a certain amount of locked-in power.

Mr. Macaulay: I see what you mean.

Mr. Haggerty: Is that taken into consideration when you apply the rate structure?

Mr. Macaulay: For that year, yes, it is. We always try to determine how soon the high-voltage deliverability will take place and how long the power that is locked in, or shut in or whatever word is used, is going to take place. That has something to do with how much more plant is needed and the years in which it will be needed. We look at it for the year in question.

Mr. Chairman: Thank you, Mr. Macaulay.

M. K. Berkowitz is appearing before the committee to discuss the findings of a study commissioned by the committee on the embedded subsidies or hidden costs of electricity options in Ontario.

M. K. BERKOWITZ

Mr. Berkowitz: In the limited time I have available, I would like to

talk about four specific areas. The first is the effect of government subsidies on the decision-making process. The second is the identification and quantification of subsidies to electricity options, specifically in Ontario. Third is the conclusions that can be derived from the analysis we undertook. Fourth, I would like to present some key questions that might be relevant to this committee in the light of the issues it is studying.

11:20 a.m.

Perhaps I might first put on my pedagogic hat and talk for a moment about the decision-making process within any firm. As an example, suppose we take a company that is trying to decide between various options to produce electricity. These alternative methods of production are differentiated by the relative amounts of capital, or fixed input, to variable inputs. The variable inputs that might be used to produce electricity are labour, energy as an input in the production process and raw materials.

As an example of the different technologies available in these different mixes between capital and labour, we might think of nuclear technology as being a high-capital technological mix and low-variable input mix, as opposed to fossil-fuel-generated electricity which has a lower capital intensity and a higher variable input ratio.

If you will bear with me for a moment, I have an example to show you the effect of how decisions are made. Suppose we let K be the units of capital employed and let them be measured in kilowatts. Let L be the units of labour, but labour represents all variable inputs, not just labour. Remember, labour represents labour, energy inputs and raw materials that are input into the process. P_K is the price per unit of capital. That is not simply the purchase price of capital, but represents all the financing charges as well. You can think of it as the capital being rented and P_K is the rental price. The individual who owns the capital must earn back the price he paid for the capital, plus any financing charges used to finance his investment. That is all included in P_K .

P_L represents the price per unit of the variable input. For this example we will call it labour. MP_K is the additional electricity produced by employing one more unit of capital and holding the amount of labour or variable inputs constant. MP_L represents the additional electricity--that is the output we are interested in--produced by an additional unit of labour over some fixed period of time, holding the amount of capital fixed.

The ratio of MP_K to P_K is the extra value of an additional unit of output. It is the extra output MP_K from using one more unit of capital divided by the price, so it is the extra output per dollar. In a sense, it is a measurement of the extra value of employing one more unit of capital. Similarly, MP_L over P_L is the extra value of one more unit of labour.

How are decisions made? Suppose we start with the value of MP_K over P_K greater than MP_L over P_L . In other words, the value of using an extra unit of capital exceeds the value of using an extra unit of labour. It then follows that you will employ more capital. What is the effect of this? The firm employs more capital and less labour. As it employs more capital, the extra electricity that will be produced from every extra unit of capital decreases. Because you are employing less labour on a relative basis, the extra electricity increases.

The reallocation between capital and labour stops when the values from

one more unit of capital and one more unit of labour are exactly equal. You are getting the same bang for the buck whether you are talking about capital or labour. Another way of saying that is that the real marginal value of one more unit of K is the same as the real marginal value of one more unit of the variable input L.

When this equality is satisfied, resources are said to be efficiently allocated between these two inputs, capital and labour. The firm cannot improve itself by reallocating any funds from one of these inputs to the other input. That is the efficient process, the efficient technological mix.

What is a subsidy? It is any government expenditure that makes an available option appear cheaper to the decision maker than it would if the price reflected its full economic cost. Subsidies are hidden costs since some of the real costs associated with the option are paid through taxes, not up front.

How do subsidies affect that decision process? Suppose we let S_K be the subsidy per unit of capital. As an example, suppose we are talking about a firm that is choosing between the capital and the variable input--we are calling it labour--and S_K , the subsidy, represents a debt guarantee, which we will talk about later with respect to Hydro. That guarantee causes the cost of debt to be cheaper. Therefore, the price of capital is cheaper because of that subsidy. Instead of paying a 15 per cent or 14 per cent interest rate on debt, we are paying a lower rate because it is unconditionally guaranteed by the government. Therefore, the price of capital is less. S_K is that subsidy.

We are letting P'_K be the subsidized price. It is lower than the actual price, the price some private company making the same decision which did not have that subsidy would face in the outside market. Resources are again allocated such that the values of these two inputs are equated, but in this case P'_K is lower. If we start out with P'_K lower than before, the ratio of MP_K to P'_K is greater. As the firm adds more capital, to equate these two it has to add more capital than it did earlier. It ends up with a higher level of capital relative to the variable inputs than it would have had. In other words, the firm employs a more capital-intensive technology. In this case, going back to what we said earlier, the more capitalized technological mix is a nuclear one.

That is the effect of one type of subsidy. It distorts the decision-making process because the decision maker is not facing his real costs. He is facing some subsidized costs and taxpayers are footing the increment.

With that in mind, let us look at the purpose of this study, which is to identify and quantify the embedded subsidies or hidden costs of electricity generation in Ontario and to examine the extent to which these subsidies have influenced the technological mix for electricity production.

The options we examined were electricity produced with nuclear, hydraulic, fossil fuels or alternatives. The alternatives are grouped into one: cogeneration, small hydro, solar and photovoltaic. These are the supply options. I know a lot of people like to consider energy conservation as a means of supply. To an economist, that is incorrect. Energy conservation is not a means of supply; it is a reduction in demand. These technologies can be used to produce any level of electricity. Energy conservation can reduce that

level. If you reduce the level of electricity, you need less of any one or some combination of these to produce electricity.

11:30 a.m.

The various subsidies we are going to look at for those options are Ontario Hydro's debt guarantee, and we will concentrate on that one; the research and development expenditures subsidized by both the federal and provincial governments; demonstration projects subsidized by government; direct support to users of energy; tax incentives within the system; and other subsidies, for example, advisory services, education and program development.

First, I will look at the present debt guarantee. What is the effect of the present debt guarantee which, remember, is an unconditional guarantee by the province? If Ontario Hydro issues debt in the United States, it is done under the name of the province of Ontario. Everybody recognizes that Ontario Hydro is actually issuing it, but it is issued under the name of the province, not Ontario Hydro.

The effect of the debt guarantee on the type of generating equipment was illustrated in my little example about a subsidy. The debt guarantee causes the cost of debt to be lower than it would be in the private sector. Because the cost of debt is lower, the price of capital is lower, and there is an incentive to use a more capital-intensive, lower-variable-input type of technology. We illustrated that.

What is the effect on the demand for electricity and the level of investment made? The cost of debt is lower. Therefore, the overall cost of raising funds for this firm is lower. If the overall cost of raising funds for this firm is lower, then the prices charged consumers are lower, because prices reflect the cost of electricity generation. If the prices are lower, demand is higher. The first thing is that the demand for electricity is higher. If demand is higher, the company must meet that demand, so the level of investment is higher.

There are two effects here. The demand for electricity is higher because it has a lower overall cost of raising funds owing to the subsidy and the level of investment is higher. Not only does the company use a more capital-intensive technology, but it also invests more in electricity generation than it otherwise would. Both effects are occurring.

Why do we eliminate the debt guarantee? By eliminating the debt guarantee, Hydro's cost of funds will more accurately reflect its true opportunity cost of funds; in other words, what it would have to pay in the private sector. The cost of Hydro's funds will be comparable to the cost of funds for any other privately owned utility, whether it be Consumers' Gas Co. or Consolidated Edison in New York.

As the debt guarantee is eliminated, two effects will occur. The first is the change in the cost of debt. As we talked about, the cost of debt to Hydro will increase. No longer will there be this guarantee. Therefore, the debt will be riskier to any investor in Hydro's debt. Because of that, any investor will require a higher return on his investment, and therefore it will cost Hydro a higher rate to issue the same level of debt.

If you eliminated this guarantee, Hydro could never survive with its capital structure. Its present capital structure is more than 80 per cent debt and the rest is made up of accumulated surplus in net income that you heard

about in the last presentation. No other private firm that exists without a debt guarantee can survive with an 80:20 debt equity mix or 80 per cent debt in its capital structure. If it operated without the debt guarantee, it would have to rearrange the capital structure. This rearranged capital structure is what we refer to as the notional capital structure. That is the optimal mix of debt and equity that Ontario Hydro would have in the absence of any debt guarantee. If you took away the debt guarantee, not only would the cost of debt change, but the whole mix of funds that finances investment would also have to change.

How does Ontario Hydro's capital structure change? I should mention that all the data I am presenting are for 1984, the last year for which comprehensive data were available. I will try to update as I go along.

The present, or 1984, capital structure is 83.3 per cent debt. Obviously, there are no preferred shares. The common equity is 16.7 per cent. Those are all the income figures we were told about in the last presentation that have accumulated. There is an accumulated surplus for the retirement of debt, rate stabilization and contingencies. It is a very high debt-equity structure, something we would not see any private firm operate with.

On the other hand, the notional capital structure would comprise the following: 50.2 per cent debt, 12.3 per cent preferred shares and 37.5 per cent equity. We used a statistical model to develop this level of debt. I will not go into the variables, but if you have any questions about them later, I can talk about them. This is the capital structure that we developed for Ontario Hydro in the absence of any debt guarantee. Its basis is a statistical model, as I said.

Let us compare the notional capital structure for the same period of time. This is Hydro's notional capital structure, or what it would look like in the absence of a debt guarantee. For 100 privately owned US electric utilities as published in Moody's Public Utility Manual, 1985, for the same period, the median US capital structure was 48.5 per cent debt, 12.3 per cent preferred shares and 39.2 per cent common equity. You can see that the model is quite robust. It is very similar to the median capital structure in the United States. We are not far away from that, as you can see.

How does this capital structure rate with these 100 electric utilities when we look at these 100 electric utilities by their bond rating? Keep in mind that at present Ontario Hydro's bond rating depends on whom you are looking at. If you are looking at the Canadian Bond Rating Service, the bonds are rated triple A (low). If you are looking at Standard & Poor's, it was reduced to double A; you are all familiar with that. If you are looking at Moody's in the United States, it is still triple A, and that triple-A rating has been reconfirmed recently, so that it is not that Moody's has not got around to reducing it to double A. At present, Hydro is at double A or triple A, depending on whom you are looking at. If the debt guarantee were eliminated, its rating would drop.

You can see there are only four public and private utilities that have triple-A ratings in the United States. These firms have very low debt-equity ratios as well. Ontario Hydro would be more like double A or A. You can see that the 50 per cent debt, 12 per cent preferred shares and 38 per cent common shares for our notional capital structure is very close. Again, it is a very robust figure; it is right in there as what Ontario Hydro would be in the absence of this debt guarantee. That is the notional capital structure.

The next thing we have to look at is if Hydro had debt, preferred equity and common equity outstanding in these proportions, at what cost would it have to raise these funds? There are two choices when we look at the cost of Hydro's raising debt. The first is to imagine Hydro with this notional capital structure going in the debt market and raising capital. We estimated that opportunity cost of debt, and it comes out to about 13.09 per cent.

11:40 a.m.

On the other hand, the lower, more conservative figure that I am presenting here today of 12.4 per cent is Hydro's embedded cost of debt. It is the weighted average cost of all debt outstanding at Hydro currently, adjusted for foreign exchange adjustments and the amortization of bond discounts. The 12.4 per cent is the more conservative figure. If I used a full opportunity cost approach and looked at what Hydro would actually have to issue debt at, we have a higher figure here.

We chose the more conservative approach because all privately owned utilities or regulatory boards in the US actually regulate on the basis of embedded costs. When looking at Union Gas, Consumers' Gas and the other privately owned gas utilities, the Ontario Energy Board also bases its assessment on embedded costs. It does not use opportunity costs even though it should. To be consistent with the present regulatory approach, we chose embedded cost as well.

The preferred equity is an average of preferred share issues for, I believe, 17 privately owned regulated utilities in the pipeline, gas utility, etc., industry in Canada during 1984. The common equity of 17.6 per cent represents a figure that is, again, an opportunity cost--what it would cost the firm to issue equity. That figure was estimated from an empirical statistical model that I can go into in greater detail later. It is compensation for both kinds of risk in the firm: the financial risk if the firm is at its notional capital structure and its business risk as well. This represents compensation for all the risk being undertaken by the firm.

If we weight these different costs of the different forms of capital by their proportion, we get an overall cost of raising funds for Hydro of 13.93 per cent. In other words, if a regulatory agency were regulating Hydro as it does Union Gas or any of these other firms, and if it allowed it to earn a return greater than 13.93 per cent, there would be some surplus to investors, presumably the common equity holders. If it allowed it to earn less than this amount here, it would jeopardize its ability to compete in the capital market with other firms of the same risk. If it were allowed to earn less than this rate, who would invest in this kind of company? Who would buy Hydro bonds if they could earn a higher rate with the same risk in the private market? This overall cost of capital represents the rate a regulatory agency would allow.

If we carry this one step further and look at Hydro's return on capital, it is that cost of capital in the absence of a debt guarantee times the rate base. The rate base is basically the net book value of all revenue-producing assets. It is an average of the beginning and end-of-year values of this rate base. At present, Hydro is calculating a rate base. I am not sure for what reason, because it does not use it in the regulatory proceedings at present. It is also including work in process, which, because there was a \$9-billion work-in-process figure on the books of Hydro in 1984, gives it a very large rate base of \$23 billion or close to that.

Most regulatory agencies in the United States do not allow work or

construction in process within the rate base. Therefore, again we were consistent with that. We can inflate this figure by including construction in progress. I am curious to see what Ontario Hydro will do next year, or whenever, with its constructed rate base.

If we then multiply the 13.93 per cent--which is the return on capital, the cost of raising the funds--by the revenue-generating funds, we get a return on capital by Hydro of close to \$2 billion.

If we then reconstruct Hydro's revenue requirements in 1984--only one figure actually changes from how it actually constructed it--the revenue requirement in Hydro's own submissions is the revenue to generate the cost of electricity plus earned income, whether it be \$300 million or \$500 million, depending upon which year we are talking about, as we saw in the last presentation.

Hydro must earn its fuel, power purchases, the nuclear agreement at Pickering and the water rentals, for a total energy variable cost of \$1,211,000,000. There is \$881 million for operating, maintenance and administration, and then there is depreciation and return on capital. This is what it would have to earn to maintain its integrity in this capital structure and to allow it to compete in the capital market with that capital structure.

Secondary revenue: Our net revenue requirement is \$4,118,000,000. The actual revenue requirement during that year is \$3,783,000,000. The extra revenue that would be required in the absence of a debt guarantee on a per year basis is \$335 million. If Hydro's capital structure were altered and the debt guarantee eliminated, an additional \$335 million would have to be raised.

Now the question is, how do we allocate that over the various kinds of generating equipment. We did so on the basis of the book value of the generating equipment. We did not include the transmission equipment, which would be included within the rate base, because that is a common cost; we just allocate it in the same proportions.

Currently, the nuclear net book value makes up about two thirds of the total book value of Ontario Hydro's generating assets; fossil fuel is approximately 19 per cent and hydraulic is 13.8 per cent. Therefore, in allocating the \$335 million extra revenue over these levels, you would have \$223.8 million as the incremental revenue requirement for nuclear, \$65 million for fossil and \$46.2 million for hydraulic.

Mrs. Grier: Has Hydro allocated its revenue requirements amongst the generating mix?

Mr. Berkowitz: The cost, yes, but not the revenue requirements. You can determine the average cost of electricity generation on nuclear, fossil or hydraulic. Hydro publishes it even in the annual report.

Mrs. Grier: In its decision-making process it averages it over the whole, does it not?

Mr. Berkowitz: It is looking at the average; that is correct.

Mrs. Grier: Therefore, why is it relevant to divide it?

Mr. Berkowitz: We are looking at the impact on the decision-making process of the subsidy and choosing between different technologies. We want to

look at the choice among nuclear, fossil and hydraulic; that is why I went over that little example. This affects the price of nuclear capacity, fossil capacity and hydraulic capacity. The prices of these factors are being distorted by these demands.

Mrs. Grier: I understand that, but I did not understand that Hydro did it that way.

Mr. Berkowitz: It does not. It looks at the cost but not at the revenue. It looks at the overall revenue requirements.

11:50 a.m.

The Vice-Chairman: If I understand you correctly, I do not really see the relevance of this comparison you have made. It is not because it is nuclear, fossil or hydraulic; it is just that most of the new generation is from nuclear. Because it is newer and you are taking net book value, it has not had any opportunity to depreciate to any substantial degree in comparison with the older fossil, with the odd new one, and the hydraulic, which is nearly all old. Is that correct?

Mr. Berkowitz: The average cost of capital that we are looking at, that we have put on the board, of 13.93 per cent and the revenue that would be generated under total assets are on the total generating equipment. It is not fair to allocate the increment due to the debt guarantee just to nuclear because nuclear is the marginal capacity. That is true: At present, nuclear is the additional capacity that you would add to the system that would be brought on. As well, all the debt guarantee is associated at present with all the generating equipment, not just nuclear, so that it would not be fair to say that all of it is due to nuclear. In other words, I would not want to say that this \$335 million is all associated with nuclear because nuclear is the marginal generating, incremental kind of equipment that you would add. These are currently being used and they have been financed in a certain way to bring them on stream.

The Vice-Chairman: Similarly, if the last 15 or so units had been predominantly fossil instead of predominantly nuclear, one and two would have been completely reversed. It is not because it is nuclear; it is because most of the new stuff is nuclear.

Mr. Berkowitz: That is right, but that is covered in the net book value.

The Vice-Chairman: Yes, I understand that.

Mr. Berkowitz: That represents the effect of the debt guarantee on the various technologies.

Next I want to look at other Ontario government expenditures. The first are the Ministry of Energy expenditures. The Ontario Ministry of Energy expenditures--or subsidies, if you like--are from the annual report of the ministry for 1984-85. This information is also available in the 1984-85 Public Accounts of Ontario. During 1984, \$11.6 million was spent on alternative energy resources, primarily on research and development, and \$14.8 million was spent on energy conservation. This includes research and development, demonstration, advisory services, education, program development and user support.

The Ontario Energy Corp., whose shares are wholly owned by the province, through a subsidiary whose name is Ontario Energy Ventures Ltd., spent \$4.9 million on energy conservation, primarily in the research and development area.

Finally, during the same period Ontario Hydro spent \$37.4 million on conventional electricity generation, primarily research and development, of which \$34.4 million was directed to nuclear research, \$0.7 million was spent on alternatives and \$3.3 million was spent on conservation. Of that \$3.3 million on conservation, \$2.3 million was for research and development and approximately \$1 million was for the residential energy advisory program. Of the \$2.3 million on research and development, \$1.85 million was for load studies, which we heard about in the last presentation, time-of-day pricing studies and so on that Ontario Hydro has undertaken.

Those are the Ontario government subsidies.

Mrs. Grier: How is there a subsidy if Ontario Hydro has spent it?

Mr. Berkowitz: It is ultimately coming not from shareholders but from taxpayers.

Next, we have federal government subsidies to Ontario electricity generation. The federal government spent \$175 million on nuclear research and development during this period. I allocated that whole \$175 million to nuclear for Ontario Hydro. If you look at the additions to capacity through 1992 which were published in 1984, all nuclear expansion in Canada will be by Ontario Hydro. All planned nuclear expansion in Canada is by Ontario Hydro, according to the Department of Energy, Mines and Resources figures. If that is the case, all benefits from research and development that will be embodied with a new technology will be to the advantage of those users in Ontario. That is why the whole \$175 million was allocated to Hydro.

The Vice-Chairman: What about export?

Mr. Berkowitz: I would talk about sales but there is no way to estimate what the sales would be. If there were sales, they would have to be divided up. As far as I know, there will be none in the next seven or eight years that we know about for sure.

There was \$10 million allocated to alternatives and \$15.1 million to conservation. With regard to demonstration projects, \$2.8 million was allocated to alternative resources and \$3.4 million to conservation.

Moving on to direct support to users, the Canada oil substitution program, which ended March 31, 1985, offered a taxable subsidy of up to \$800 for any household that switched from oil to electricity or natural gas. On the basis of use, we found out how much was allocated in Ontario for those who switched to electricity, and then allocated among those who switched to electricity by generation: nuclear, fossil, hydraulic and alternatives.

Under the Canadian home insulation program, which was scheduled to end March 31, 1986, one year later, \$19.7 million was spent on energy conservation in Ontario.

Finally, we come to federal government tax incentives. There are two basic tax incentives. With the first, conservation equipment which may be classified as class 2 or class 8 is able to be classified as a class 34 asset and is allowed to be written off faster for tax purposes. The estimate of the

savings due to conservation, therefore, would be \$2.5 million. That is the increment. If you had those same assets and depreciated them over their normal class 2 and class 8 rates versus the higher rates, 25 per cent, 50 per cent and 25 per cent, the savings attributable to that benefit would be \$2.5 million.

With the federal sales tax exemption, certain conservation items, household insulation materials and construction materials, are exempt from sales tax. Because of that exemption, there is a \$21-million saving attributable to conservation.

12 noon

If we sum up all those, what do we see? The nuclear subsidy represents \$436 million of the whole \$668.7 million. Close to two thirds of the whole subsidy to Ontario electricity options in 1984 was for nuclear generation. Slightly less than five per cent was for alternatives and slightly less than 13 per cent of the total was for conservation.

If we impose these figures on Ontario Hydro's standard costs, how do these subsidies affect them? Nuclear would be pushed up the most if we add on the subsidy and see how it affects the average cost of production. Hydraulic is marginally increased on a per kilowatt-hour basis. Coal is marginally pushed. The one that would be affected is nuclear.

What general conclusions can we draw?

First, there appears to be a large imbalance of subsidies between the available options for producing and conserving electricity. This imbalance distorts the allocation of resources in the marketplace.

Second, the large imbalance of resources, primarily in research and development, occurs at both the federal and provincial levels, not just at one.

What questions can we raise from this?

First, does the imbalance in subsidies reflect the policy objectives of government? Is this the path, the direction, the government wants to follow? I have tried to give an estimate of the subsidies and how they affect different technologies. It has not been normative; it has been positive. I hope I have not given any embarrassing inflections about certain technologies or subsidies to one or the other. I have tried to make this study positive and to present a picture of where the subsidies are going. Now it is up to you. Does this imbalance reflect the policy objectives of government? Is this the road, the direction, Hydro should be taking?

Second, considering Hydro's allocation of resources, are demand and supply options given an equal chance of being selected? Is there a bias in the process for supply options? If so, is this bias consistent with the objectives of government? It is not wrong that there be a bias. It is not wrong that the subsidies be different for these different technologies if they reflect the objectives of government. However, it is important to get the objectives of government straight and then decide on the subsidies, not necessarily to take these things as given, written in stone, and not able to be changed.

That brings us to what opportunities are available to government to rectify these imbalances. The obvious one is to eliminate the debt guarantee or have Hydro act as if it did not have a debt guarantee. One way of doing

this is to privatize Hydro; to have it act in the private market, as does Consolidated Edison of New York or Union Gas here.

Another possibility would be to have it accumulate a surplus so, during some period, it would try to achieve the 50 per cent debt-to-asset ratio we recommended as the optimal capital structure if it did not have debt guarantee. Without the debt guarantee, remember that rates would go up. As rates went up, the firm would earn higher profits. If those were retained, the surplus of the company would increase, and the debt, relative to the equity or total assets, would be reduced. The goal might be that 50 per cent. Over time, it could achieve it by charging higher rates, accumulating the surplus and operating at this lower debt-asset ratio in the long term.

Thank you very much. If you have any questions, please feel free.

The Vice-Chairman: Mr. Berkowitz, please go and have a seat over there, if it is more convenient. There are some microphones handy.

Mrs. Grier: Has this kind of analysis been done before? For example, to your knowledge does Ontario Hydro make its decisions based on the kind of awareness you have demonstrated, or is this the first time that a quantifying of the subsidies has been attempted?

Mr. Berkowitz: The first time we did this was in 1980, when we did this study for the Department of Energy, Mines and Resources. We looked at the production and distribution of electricity among all crown corporations in Canada. It was a lengthy study. We refer to it as the BH report in this report.

In 1981 we did a similar kind of study for Union Gas, looking specifically at the subsidies embedded in electricity. At the time Mr. McKeough took it at Union Gas. I know Mr. Lalonde ultimately saw it and it went through Hydro, so Hydro was aware of it four years ago.

Mrs. Grier: Are the kinds of expenditures that you describe as subsidies made by the Ontario government or federal government different from the kinds of expenditures made in the United States by the federal or state governments?

Mr. Berkowitz: In the United States, the federal government does spend money on nuclear research and development.

Mrs. Grier: Does that influence the analysis you have done or the capital structure of the private utilities?

Mr. Berkowitz: It is not necessarily that they are private utilities. In the United States they are privately owned and regulated, but the same kind of subsidy might exist. Electricity might, therefore, have some comparative advantage over, for example, gas generation for space heating purposes that does not have that kind of subsidy. That difference or similarity, depending on how you look at it, is the same in both countries.

Mrs. Grier: Is that taken into account in any of the decisions being made in those other jurisdictions?

Mr. Berkowitz: Not that I am aware of. They are private companies, a gas utility and an electric utility, competing against each other. Because an electric utility has a subsidy for its particular technology, the shareholders of that company--I keep using Consolidated Edison in New York, but the same

would apply to any privately owned electric generator in the US--would receive the benefits. They would reap the advantages of that.

Mrs. Grier: The effect of those kinds of subsidies in a private utility situation would be that the benefits of the subsidies would accrue to the stockholders.

Mr. Berkowitz: Correct.

Mrs. Grier: Whereas here they accrue to the ratepayers of the utility. Is that a fair statement?

Mr. Berkowitz: They are paying lower rates, so taxpayers are better off in that sense.

Mrs. Grier: Here?

Mr. Berkowitz: Yes, but there is another sense as well. Because they are paying lower rates there is greater consumption and because of this greater consumption there is greater investment, and investment in the marginal capacity would be nuclear. You have to weigh that.

Mrs. Grier: Which would itself distort the rates.

Mr. Berkowitz: Right.

Mrs. Grier: The capital structure that you showed us--I have to go back to the number of the ideal capital structure.

Mr. Berkowitz: It is 50 per cent debt.

Mrs. Grier: How does that compare with the capital structure of gas companies here?

12:10 p.m.

Mr. Berkowitz: We estimated it from a sample of 17 or 18 privately owned gas utilities and pipelines. At the time, there were some privately owned electric utilities as well. It compares favourably with those. It depends on how good the statistical estimate was. We were estimating from a sample of those data, so I assume it is close to that.

Mrs. Grier: In your comments about the rate base, you mentioned \$9 billion had been added to Ontario Hydro's estimate of its rate base. That is Darlington, presumably, as you were talking about things in progress.

Mr. Berkowitz: At this point, there is no reason for it to calculate a rate base because it does not use it for any reason. You use a rate base in the United States only when you are a privately owned company asking for a rate increase before the regulator. You go through the process I went through. You figure out an allowed return and multiply that by a rate base. That is your allowed profit. You then distribute your rates to earn that profit. That is not the process Ontario Hydro uses before the Ontario Energy Board. That is why I said I was curious to see what it does with that figure in the future. Currently, there is no use for it.

Mrs. Grier: I do not understand the purpose of using the rate base in other jurisdictions to arrive at the rates.

Mr. Berkowitz: In the US, a regulator allows a firm to earn a specific return on its capital. That return must maintain the integrity of the firm, allowing the firm to compete in the capital market with other private firms. As an example, if the regulator allows a return of 14 per cent, that is 14 per cent on all the assets that generate revenue. That 14 per cent return is a return on an investment. The investment is the rate base.

If you multiply those two things, you get essentially the allowed profit that the firm is allowed to earn. You have that translation into an allowed profit and then the firm has to argue: "Should we distribute rate increases to commercial, industrial, residential and municipal users? How do we then do that to earn this overall profit?" There are two stages. One is the setting of the allowed return and the second stage is the allocation. How do you allocate rate increases to customers so you earn the return allowed in the first phase?

Mrs. Grier: Do I need to fully understand the difference between embedded costs and opportunity costs to appreciate your analysis, or do I not need to make that confession?

Mr. Berkowitz: You do not, only because regulators do not use the opportunity cost approach. They allow the firm to earn its historical cost of debt. In other words, the regulator should be concerned with what it will cost the firm to raise money in the future. It is going for one period. What will it cost it this period to raise funds? What it uses is the average cost of what it has cost it in the past to raise funds.

Mrs. Grier: That is the embedded cost?

Mr. Berkowitz: That is the embedded cost.

Mrs. Grier: As opposed to the opportunity cost.

Mr. Berkowitz: That is correct.

Mr. McGuigan: I point out that there is a subsidy in the fact that the province guarantees the debt. That leads to higher use and that leads to increased borrowing. Would there not be some tendency for those two to cancel one another out? A lender would tend to look at this utility and say, "The amount of money here is getting larger, the risk is getting a little greater and, therefore, we charge a higher rate." It probably would not fully cancel out, but is there not a tendency for those to cancel each other out?

Mr. Berkowitz: As the debt guarantee would be eliminated, the firm, as you correctly stated, would become more risky to any investor, so any investor would require a higher rate. This would translate into higher prices to users.

Those higher prices should have an effect of reducing the demand somewhat and therefore reducing the level of capital spent. However, when the prices of electricity--whether it be in comparison to natural gas or any of these--increase in the short run, demand is not all that sensitive; it is very insensitive. Economists tend to talk about the price elasticity of demand, the sensitivity of demand to changes in price. The short-run price elasticity of electricity is actually quite low because in the short run there are very few substitutes. If you have an electric dishwasher or dryer, if electricity

prices increase, there is very little you can do in the short run.

As the capital becomes more obsolescent--as your washing machine or dryer wears out--the higher prices would encourage you to buy a gas machine. In the longer run, substitution possibilities exist, but in the short run there are not many. In the shorter run, even though prices would increase as the result of a reduction in the debt guarantee--and maybe we are talking about one cent per kilowatt hour; even with this \$335-million subsidy, we are not talking about a doubling of electricity rates--it probably would not make that great a change in demand in the short run. In the longer run, again, that would be different.

Mr. McGuigan: Following that line of argument, it seems to me you are arguing against your original premise, are you not?

Mr. Berkowitz: It would not be as strong. It would not happen as quickly as you might think. If you eliminate the debt guarantee, and prices go up and suddenly the demand is cut in half and therefore Hydro does not have to worry about meeting that demand, it can sell all this electricity to the United States. That is not so in the longer run.

That is one of the problems with time-of-day pricing; trying to get people to use electricity at different times of the day. You do not know what the difference in prices has to be to encourage this use at different times of the day. That is what all the experiments are about, looking at the different ratios of prices on and off peak.

Mr. McGuigan: Look at the Arabs: They had to increase the gasoline base price 14 times before there was any response.

Mr. Berkowitz: That is right. I agree, but there was a response.

Mr. McGuigan: They increased the price of crude oil 14 times before we got a 100 per cent improvement in gas mileage. It does not make me feel very positive about electricity if we had to increase it 14 times before we got a response.

Mr. Berkowitz: They have done three experiments in the United States, in Connecticut, Los Angeles and Wisconsin, on time-of-day pricing. They are looking at very large differences of 10 to 15 times between the off-peak and the peak prices to see exactly what the differences have to be. You have to be very careful though, because you do not want to shift the peak either. You do not want to have the difference so large you cause the whole peak to go to the other side.

Mr. McGuigan: You have not accomplished anything if everybody shifts.

Mr. Berkowitz: No, not at all.

Mr. McGuigan: You have to draw lots between who is--

Mr. Chairman: I want to try to complete this testimony by 12:30. I have three more names.

12:20 p.m.

Mr. Moore: If we restrict the argument to the guarantee, you mentioned it encourages capital-intensive and low-labour input options, in

particular the nuclear as opposed to the fossil-fired option. In fact, hydroelectric power would fall even more into the category of capital-intensive and low, later expenditures. Does the guarantee really encourage nuclear per se or does it simply work against certain options?

Mr. Berkowitz: When you are looking at choices among options, you have to look at those that are available. Hydro sites that are reasonable are no longer too available in Ontario. If you are including them within the choice set and they are perfectly available, say, in Quebec, then I agree those should be part of the decision process, but basically, they are not within the opportunity set in Ontario. There is a restriction or a constraint on availability. I agree; things would change entirely if they were there.

Mr. Charlton: Can we discuss the potential extension of what you have provided to us by looking at a couple of alternatives the committee could consider? For example, can we extend what you have provided to look at opportunity cost as opposed to imbedded cost, the relative per-unit ranking of the various options without subsidy and with subsidy, on the assumption that even though we want to be able to weigh them equally, we may also want to take advantage of whatever benefits the subsidy can provide in Ontario, as you have suggested?

Is it possible for us to extend the set of data you have provided to look at the per-unit costs of the different options for the next increments of power in Ontario, to compare them without subsidy and with subsidy, so we can in effect look at the best options to consider as a province? In addition, having compared all the options without subsidy, can we look at other ways of using the subsidy than in the power rate itself, perhaps using the subsidy through the tax system, in rebates and so on?

Mr. Berkowitz: Different subsidies have different costs of administration, and for the same amount of money you might get a different bang for your buck depending on how you administer the subsidies. There are a number of things written about that.

To get back to your question about looking at the opportunity costs, you are asking for what economists refer to as the marginal costs of electricity expansion. One of the reasons there has been a two-month debate at the Ontario Energy Board about whether it should be using marginal cost pricing is that everyone advocates using marginal costs. It is efficient and allocates resources in the most efficient way; however, the measurement of marginal costs is very difficult. Going through the measurement of marginal costs is a difficult concept and process. It is not easy. As you add an increment of a certain kind of capital, it not only affects your production of the next unit of electricity; it could change your whole present production mix. The measurement of marginal costs has to consider all those things. It is a difficult concept.

Second, as we were looking at subsidies generated by the federal government we made some assumptions, and made them clear in our report, about how those federal grants or federal subsidies should be allocated to Ontario and then to specific technologies. You have to make some assumptions about how to go from A to B to C. As long as you know the assumptions, when you talk about making a decision, you know the decisions are made on numbers that were developed with a certain set of assumptions. We tried to develop that set of assumptions. It is a long answer. It is difficult in some in that you have to make assumptions to do so, but it is possible.

Mr. Charlton: It is possible?

Mr. Berkowitz: Yes.

Mr. Charlton: Taking into account the assumptions you just talked about on the third to last page of your presentation, you attributed the total value of the subsidies to each of the options; the 436, the 69.7, the 49.9 and so on down the list. Having made the assumptions you have made, how difficult is it to take it the next step to look at the per unit costs of the next increment?

Mr. Berkowitz: The next increment would be influenced by the subsidies that you are talking about. If you agree with the subsidies and think this is the way they should be, they affect your decision; it is a cause and effect.

Mr. Charlton: From the size of the figures, I assume they affect the decision. Can we take these subsidy costs and come up with the real number per unit?

Mr. Berkowitz: If you start out with the assumption that you will add an 800-megawatt nuclear plant, and that is the incremental equipment that you want to add, then you can look at the cost of that. It would be very difficult to try to take out all the subsidies but, theoretically, you could look at that with and without subsidies. The fact that you have the subsidies might affect the fact that you want an 800-megawatt nuclear plant.

Mr. Charlton: I understand that. That is why I am saying you have to start out looking at it without the subsidy. Then you want to look at--

Mr. Berkowitz: It might not be that you want an 800-megawatt plant without the subsidies.

Mr. Charlton: That is correct; that is what I am saying. You go the next step and look at the whole range of options without any subsidies, and then move from there to decide whether you want to use subsidies, where you want to use them, and in which way you want to use them.

Mr. Berkowitz: You would be talking about the effect of the subsidy and its translation into a price increase to demand increase or reduction.

Mr. Charlton: Correct.

Mr. Berkowitz: All that would have to be taken into consideration.

Mr. Charlton: That is exactly what I am saying I want to do. You say we can do that, although it is difficult.

Mr. Berkowitz: Yes.

Mr. Charlton: Thank you.

The Vice-Chairman: Could I ask a last question? We have about a minute. Mr. Snell has backed away from his.

I appreciate what your mandate was; I am not challenging that at all. When you looked at the debt-equity ratio of the 100 private utilities, even for your own purposes, and then compared them with Ontario Hydro, did you also

do any comparisons of the average debt-equity ratio of the public utilities, particularly in Canada to see whether Hydro was way out of whack in that regard?

Mr. Berkowitz: Not at present, but in 1981 we did. The debt-equity structures do not change that much over time. If anything, they were slightly lower in terms of the debt at that time.

The Vice-Chairman: They still are in comparison to Canadian utilities.

Mr. Berkowitz: Right.

The Vice-Chairman: The only reason I bring that up--and as I say, I am not challenging that in any way; I know what your task was--is that some people may have the wrong conclusions about the debt-equity ratio when you compare apples with apples, rather than apples with oranges.

Okay, we have gone exactly to 12:30 p.m. Thank you very much, Mr. Berkowitz.

Mr. Berkowitz: Thank you.

The Vice-Chairman: It is the feeling that the committee should have an hour and a half for lunch, so we will meet at two o'clock. Please be prompt; we will be starting right at two. Perhaps I should say 1:50 p.m.

The committee recessed at 12:30 p.m.

CA24N
XC 2
-85N22

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

MONDAY, APRIL 14, 1986

Afternoon Sitting

SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Ashe, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, R. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Polsinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitutions:

McLean, A. K. (Simcoe East PC) for Mr. Gordon
Shynko, Y. R. (High Park-Swansea PC) for Mr. Jackson

Clerk: Carrozza, F.
Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy
Snell, B., Consultant; with Canada Consulting Group Inc.

Witness:

From ICF Inc.:
Linder, K. P.

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Monday, April 14, 1986

The committee resumed at 2:18 p.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: We will come to order. Mr. Linder, I am sorry for the delay. Please proceed.

ICF INC.

Mr. Linder: I thank the committee for the opportunity to speak with you today, and for whoever was responsible for the beautiful weather. As I said during lunch, it was probably ordered for the Blue Jays' opener.

My name is Keneth Linder and I am with ICF Inc. ICF is a consulting firm in Washington, DC. We work principally in areas of the environment and energy. We have practices in health care, occupational safety and health and other public policy issues. The mix of people is basically economists, business MBAs, people who have degrees in public policy as well as engineers and scientists. We have been doing quite a bit of work recently in the area of hazardous wastes. In the energy area, we have been working on least-cost planning issues and we are very much involved in the Michigan electricity options study, of which some of you may have heard. I will discuss that a little later on since it is relevant to the topic at hand.

This lists the topics I would like to address today. First, to lead into the talk I will give some historical perspective on regulators and utility planning, and then go into some possible reasons for the growing interest in utility planning among regulators and policy people these days. I will present some information on a survey of legislative and regulatory activities in the United States and then illustrate that with some activities in particular states. I will contrast some of the different approaches some of the states have taken with regard to looking at utility planning and then finish up with some of the lessons from the United States and some cautionary notes.

Prior to the 1970s, there was very limited direct involvement of regulators in utility planning. It was limited principally to issuing certificates of need for new power plant construction and rate regulation. Rate regulations were more or less after-the-fact regulations of utility plans, whether or not the investments would be included in the utility's rate base.

There was very limited direct involvement in utility planning and where there was it was pretty much a rubber stamp of the utility decisions. New plants entered into the rate base as a matter of course. It was limited at that time to looking at demand-side options, as we say these days. Some of the reasons are that there were steady and high rates of growth in demand and the utilities could plan. Flexibility was not much of an issue.

There are economies of scale in constructing new plants. There was an apparent abundance of resources of fossil fuels and the like. There was also a

limited perspective on the externalities of power generation, particularly environmental or potential environmental impacts of power generation during the time.

With respect to financial stability, utility stocks were highly rated securities. Very conservative institutional investors invested in them as well as people looking for long-term growth for their retirement. Probably most important was that there were falling real, and at time nominal prices of electricity during that period, implying that the marginal cost of production was less than the average cost of production.

During this time the utility planning approach was basically the marketing of new uses such as air conditioning. Traditionally, United States utilities were winter-peaking based on lighting loads. To counter or fill in in the summer season, there was the marketing of air conditioning during the 1950s and 1960s. Partly as a result of their success, and of increases in income and so on as well, most US utilities now are summer-peaking and they are trying to look at demand-side programs that will limit growth in the summer peaks or to fill in the valleys in the winter.

During this period, forecasting by trend extrapolation or other simple methods was appropriate because of the regularity of growth in electricity. Again, because of this growth and economies of scale, investments typically were in larger central station plants.

To illustrate some of the situations in which they found themselves, this is a chart that shows the annual percentage change in electricity demand from the period 1955 through the early 1970s. While you can see some year-to-year variation, generally the demand for electricity was growing in the range of seven per cent per year. This implies that there would be a doubling of capacity required every 10 years.

We can see that for the US the incremental capacity additions during the same period were steadily increasing and the average revenue per kilowatt-hour of electricity sold was declining. This is in constant 1982 dollars and illustrates that the price of electricity fell in constant dollars from about six cents per kilowatt-hour in 1955 to less than four cents per kilowatt-hour in the early 1970s.

The events of the 1970s reversed all these reasons for simple approaches to planning, limited regulatory interest in planning and limited interest in utility decisions. I will not go into all the reasons for what happened in the 1970s because I am sure you are as familiar with them as I am. To repeat the graphs I showed earlier, but now extending the time period out to the early 1980s, we see that the regular increases in growth of around 7.5 per cent are no longer to be seen. We hit some low point near zero growth in 1974 but there was a dropoff. The current rate of growth is about three per cent but the forecast is around only 2.5 per cent in the longer term. With regard to capacity additions, we were at the peak of this graph in the early 1970s and that has shown steady reductions from the peak in 1974, with sectors and new units coming on line in the early 1980s.

Here is the chart of utility revenues per kilowatt-hours sold. You can see from the low point in the early 1970s in constant dollar amounts that we have increased to about the same place we were in 1955. In the United States, the principal producers of electricity are investor-owned utilities and this is one illustration of what was happening to some of their finances during that period. We can see the earned rate of return on equity of these utilities

was relatively stable during the period. There is some downswing in the early 1970s, and then an upswing in the later 1970s, only to fall again after 1980. It was relatively stable but interest rates were skyrocketing during the period, causing utility stock prices to fall and new debt financing to be very expensive. This contributed greatly to the inability of utilities during the period to start new capital projects or to complete old ones.

With these things going on, there was much more interest by the government and regulators in utility planning during the 1970s, but the focus of this interest was really on short-term planning issues and utility operations. The focus of regulation during that period was on prices and the availability of fuel. This saw the introduction of fuel adjustment clauses which are pass-throughs of fuel cost increases to the customer and issues such as moratoriums on gas hookups.

Other focuses of the period were on remedies to avoid financial collapse of individual utilities and on questions of what to do with the large central station plants that were already in the pipeline. In the United States, this meant especially nuclear units, but also some very large coal units. The idea was shifting from the marketing high-growth perspective to a conservation low-growth perspective. Part of what was going on at this time was the implementation of the Public Utility Regulatory Policies Act and other parts of the 1978 energy legislation on the federal level which called for more efficient use of electricity, promotion of conservation in looking at time-of-day rates and other things of that nature. During the late 1970s and early 1980s, a lot of attention was paid to the implementation of PURPA and all its provisions.

Now it seems there is a growing interest in the longer-term plans and decisions of utilities, starting in the 1980s. One of the reasons for this is that the recovery of the economy and electrification of industry indicates the possible need for new power plant construction for the 1990s. People have made forecasts and some show low-load growth while others forecast high-load growth. The possibility is that we may be getting into another growth period. The questions people are asking are: What will the growth be? How much capacity will be needed? What are alternatives to new capacity? If we do need new capacity, what kinds of capacity?

2:30 p.m.

Another reason that there might be more interest and attention paid to these issues is that there is relative stability in the industry at present. This allows some shift in the focus from short-term issues, as I mentioned on the previous slide, to longer-term issues. There are some remaining crises but these are principally nuclear issues and they are more isolated and less traumatic than the conditions during the 1970s.

An overriding consideration is that people have been stung by the 1970s and they want to avoid a recurrence of the conditions and responses, both of regulators and utilities--the inability to respond, let us say--that was characteristic of the 1970s. Principal concerns would be treatment of uncertainty in forecasting, again relating to what our needs are and how certain they are, as well as flexibility in utility plants and responses. Are there ways we can adjust our plans and cope with changing conditions as they occur?

Some other factors are that many options are being considered in the US for utility investment, both on the demand side and the supply side. A lot of

this is the outgrowth from our experiences in the 1970s. We have gained experience with these options and decided not to return to the lock-step response of only building large central station plants. The perspective in terms of utility investment now is going more toward looking at a portfolio of options that may include some large central station plants, but also some more flexible, smaller-scale plants, conservation opportunities, load management and the like.

There is also the availability of new, sophisticated planning tools and data that help in planning. For example, there have been the development of end-use forecasting models and the application of decision analysis tools to utility investment decisions. Data on customer uses of electricity and customer behaviour are becoming available, much more so than they were during the 1970s or earlier.

There are also continuing concerns over environmental and safety issues associated with utility investments and particularly central station options, acid rain which is related to coal, and disposal and safety issues, among others, for nuclear plants. In addition, there is the objective of financial stability. This is related to the flexibility of investment portfolios and a return of confidence in these investments to keep the cost of expansion and operations down.

The impetus for better planning--that is one way to put it--is coming from many segments of the market, from investors, users of electricity, consumers and industry. There clearly was concern about the cost increases during the 1970s and people would like to keep those cost increases as low as possible in the future. What can we do in terms of planning to keep them low? Environmentalists are concerned as well as special interest groups. Politicians are also interested in doing a better job in utility planning.

This brings us to the concept of least-cost planning, of which you have probably heard at least three or four definitions already and are likely to hear several more. I will not give you a definition today. Basically the ideas that are embodied in the term, and where regulators and others are going, is that least-cost planning implies the consideration of a wide variety of both demand-side and supply-side options such as the integrated consideration and analysis of these options, decisions on investments based on economic and financial criteria, that is, cost-effectiveness of the various options and, I will add, a focus on the societal perspective, taking account of social and environmental costs and the like.

To get down to some of what is going on in the US, ICF Inc. conducted a review, not a complete survey but a review, of some of the activities related to utility planning last year, and to demonstrate the wide interest in the idea of least-cost planning or topics related very closely to utility planning, we looked at federal agencies. In the United States, a lot of the regulation is done at the state level; so we looked at state legislation as well as regulatory bodies.

Looking at federal government activities first, policies and legislation have addressed elements of least-cost planning. For example, in the 1970s there was the Public Utility Regulatory Policies Act, and some of the other segments of the National Energy Act of 1978 promoted energy efficiency. They required utilities to provide information in audits to customers; tax incentives were included in the US for solar and conservation investments--those have expired recently--and there was an increase in

research and development funding. There was a solar energy research institute as well as others during that period.

One additional activity was regional planning as instituted in the Pacific Northwest. This is a unique situation in the US, which is related directly to the large government role in electricity generation in the region. These were some activities that occurred during the 1970s.

As an ongoing activity, there is a rekindling of interest and there are current efforts to assess least-cost planning needs. Congresswoman Schneider is spearheading this effort by looking at the needs of industry, regulators and others, to see what information and tools are needed to do a better job of planning and establishing a research, development and implementation plan to get data and tools in place. She is also focusing on conservation. A lot of the effort is being directed through the conservation office at the Department of Energy at this point.

The bottom line is that there has been no comprehensive policy, law or regulation at the federal level that addresses utility planning. There have been congressional hearings that have looked at these issues, but they have not resulted in substantive action. There is a long tradition of state regulation in that in the United States, and it is problematical whether such a law or whatever would be passed in the US.

Another federal agency which is involved in utility issues is the Federal Energy Regulatory Commission, which regulates wholesale and interstate sales of power. Order 298 of the FERC has to do with including construction work in progress and rate base. It is a very controversial order and there has been a lot of focus on the order.

One of the provisions there is that the plants, which are allowed to get 50 per cent of the CWIP and rate base, must be prudent and consistent with the least-cost energy supply program. There has been little definition of what constitutes a least-cost energy supply program and there has been limited experience with implementation and enforcement of the provision. The focus has really been on the CWIP issue itself and not so much on the least-cost energy part of that.

2:40 p.m.

Turning to the state activities now, we look at some of the legislation associated with utility planning that has been passed at the state level. You should note that this is not a comprehensive list; rather, the idea was to try to get some representation of some of the activities that are going on in the US.

If we start over on the left, we talk about fully integrated resource plans that focus on least-cost planning. Nevada is an example that comes to mind. I will be talking about that in a little bit more detail later on. This would be one end of the spectrum in which the legislation and the implementing regulations are very prescriptive in terms of the methods, content and format that utilities have to use in doing planning in Nevada.

Other states have stopped short of that. They have required the utilities to submit plans and forecasts and then the state will review and pass judgement on the forecasts and plans. In some of these states, such as Ohio, you find that the forecasts and plans are developed by the utilities and then they are reviewed for reasonableness by the state. North Carolina goes a

step further in that it does an independent forecast itself. Again, I will discuss these in a little bit more detail in a few minutes. The focus on many of these activities is to look at alternatives to central station generation where they appear to be cost-effective.

In other states, we have the development and review of statewide forecasts and plans. In New York, the power pool is required to develop a statewide plan and the Public Service Commission reviews the plan for cost-effectiveness. In Texas, the Public Utilities Commission prepares a statewide forecast, including and focusing on conservation activities based on utility reports. In addition, utilities must demonstrate the potential for demand-side programs and offsets to central station generation at the time of seeking certificates of need to build a new plant.

Other states do not go quite as far in requiring the utilities to provide long-term plans, but they still get very much involved in the promotion of conservation and renewable resources. The focus here is on demand-side options and nonutility power production--in Iowa, as an example--and includes increases in the efficiency of power production in Florida.

Now we will shift our focus a bit from the legislation and look at activities that have been initiated by regulators, which would include public utility commissions in the US as well as state energy offices. Again, this slide is not a comprehensive list, but just indicates the types of programs and options that are being promoted by the regulatory bodies.

The focus here is pretty much on promoting conservation and renewables. In some states, there are requirements to study and consider options and include them in plans where they are cost-effective. There are in some states requirements to provide services such as audits or financing of investments in conservation devices or to establish programs such as informational programs. Also, in some states the independent state agencies, such as state energy offices, will serve as interveners in rate cases to promote conservation and elements of least-cost planning.

We do not need to discuss the next slide. It covers some other jurisdictions and some other items they have been looking at.

What we see in the US is that these activities are not focused on comprehensive approaches to planning. Here are some reasons. One is that in some states there is limited authority of what the regulators can require the utilities to do. In many cases, the authority of the regulators may extend only to review of utility decisions after the fact. Again, they may be limited in what they can require the utilities to do.

Another reason is limited resources. Either doing a very thorough evaluation of a utility plan or developing an independent forecast and plan can be very resource-intensive and the resources have just not been allocated to implement state-of-the-art techniques and data collection or development to perform this kind of independent function.

I feel we can expect growing interest in least-cost planning among regulators in the US, as indicated by the statement from a 1984 convention of the National Association of Regulatory Utility Commissioners. It states, "Commissions should adopt a policy which bases the determination of need for new facilities on the development of a least-cost supply plan which evaluates and incorporates all cost-effective conservation, load management and

alternate energy sources." Again, we are getting away from the more traditional concepts of utility planning.

Another survey has been done on behalf of Congresswoman Schneider's office and published by the Critical Mass Energy Project. My understanding is that you will have a representative from Critical Mass here in a day or two to discuss some of its findings in more detail, but I do want to present an overview of the results at this point.

Critical Mass classified state utility commission activity according to three factors. The first factor is planning; that is, the requirement that utilities submit a long-range resource plan. The second is evaluation; that is, that there is a comprehensive review of the plan by the state. The third is enforcement, that there is some control within the state regulators over utility investments.

Using these three criteria, the states fell into three categories. Level 1 was a comprehensive least-cost strategy. This incorporated all three factors to some extent--planning, evaluation and enforcement--and the utility investments were determined within an integrated planning process.

Level 2 was states where investments were not well integrated into the planning process but some progress had been made. To make level 2, utilities had to be required to file plans with the state, have programs promoting conservation and had to have was a procedure for certificate of need within the state.

Level 3 was classified as minimum implementation of a least-cost strategy. This would be states where there is little progress and lack of one or more of the characteristics of a level-2 state.

The results of their judgements of the state activities are indicated on this slide. In level 1, which was a comprehensive least-cost strategy, there were eight states. Level 2, where the investments were not integrated in the planning process but there was some substantial progress toward least-cost planning, covered 19 states. Then there were 22 states that showed minimum implementation of involvement in least-cost planning.

The bottom line is that there are some states where substantial activity has been going on with the regulators and state agencies, but there are also states where there has been limited activity.

2:50 p.m.

I would like to talk briefly about four different states and some of the alternative approaches they have used in looking at utility planning. The first example is Ohio. Here the state legislature established a requirement for periodic review of all utility-developed forecasts and plans in the state. I believe a utility has to submit--it used to be to the division of energy--a forecast and investment plan every five years when it comes in for a rate case or if it wants a certificate of need to build a new plant

The function was established by the legislature in an agency independent of the Ohio Public Utilities Commission. They wanted to keep that as a separate function and not include it in determinations of rate base and rate making. However, my understanding is that the division of energy no longer exists in Ohio and this function has been absorbed within the Ohio PUC. It is

unclear right now exactly what that is going to do with the function or its use.

Formal hearings were held in Ohio on the plans and forecasts to receive input from interested parties. This included state agencies such as the power plant siting board and the consumers' council as well as other interveners. The division of energy, now the Public Utility Commission, based on the findings in the hearing, would make a determination of the reasonableness of the methods used in forecasting and planning as well as the results of those forecasts and plans.

Mr. Cureatz: Was there any public funding of the consumer group?

Mr. Linder: The consumer group in Ohio is a state government agency, so that they are funded out of general funds. It may be that their budget is earmarked from utility revenue, as it is in several states. In some states--I believe it is the case in North Carolina--they take 0.5 per cent or 0.75 per cent of revenues, or whatever, and that is allocated to these types of functions.

To go back to Ohio, the determination could be used by the Public Utility Commission power plant siting board in regulating rates and approving new construction. The determination of reasonableness, however, was not binding on the actions of these groups. A key aspect of this is that information is being provided and one government agency would make a recommendation or determination about the reasonableness of what the utilities had presented, but it was not binding on the other utilities to accept those findings.

In Ohio, the legislation addresses conservation and related issues as part of the determination of reasonableness. That does not require fully integrated least-cost planning. Finally, there is no independent forecasting or planning capability established in the state.

To switch to North Carolina, there are some similarities to Ohio in that there is a review of utility-developed forecasts and plans. However, there are some important differences. First, the North Carolina Utilities Commission public staff, which is a body independent of the commission, develops its own forecasts and supply plans. All forecasts are presented in a formal proceeding approximately every two years. This would include the utilities' forecasts and plans as well as the independent forecasts and plans developed by the public staff. This has been going on since the late 1970s and many interveners participate in these hearings. The proceeding is instituted and heard before the public utility commission itself.

As a result of the hearings, the commission issues an order that contains approved forecasts and supply plans for the utilities. The order can include implementation of conservation and load-management programs or requirements that these programs be studied. There are pilot programs, demonstration programs instituted and the like.

In the case of North Carolina, the utilities are bound by the commission's order. They are required to establish their investment program so that it meets the plan approved by the commission. If there is a change in conditions or whatever and they want to build faster or not as fast, it is the utility's responsibility to come to the commission and request that it be released from that plan. As in many of the other states, there is substantial

emphasis on demand-side programs, but the demand and supply analyses are not fully integrated.

You are going to be hearing from someone from Nevada so I will not go into much detail. Nevada is an interesting case in that, as we saw from an earlier slide, there is the public service commission review of utility-developed forecasts and plans, but the implementing regulations of the legislation are very prescriptive in terms of the methods, content and format of those plans. The regulations require forecasting using very detailed end-use methods. They require explicit treatment of risk and uncertainty, and require integration of demand-side and supply-side options to develop a least-cost plan.

An interesting feature is that the utilities are also required to develop a two-year implementation plan. This means there is a long-term plan that the public service commission reviews and passes judgement on, but the utilities also have to submit a short-term plan as to how they would go about implementing the longer-term resource plan.

Also in Nevada, approval of the least-cost plan by the public service commission in Nevada does not necessarily mean approval of construction of the plants that are included in that plan. If a utility wants to build a plant it has to come back to the public service commission and get permission to build that plant. It will not get permission to build the plant unless it already is in the least-cost plan.

The final illustration is Michigan. As I mentioned, ICF Inc. is very much involved in the Michigan electricity options study. Historically, there has been very limited regulation of utility planning in Michigan. For example, power plant siting legislation has been submitted several times but not passed. There is a very limited review of utility plans and it is more or less after the fact. The utility will come in a rate case proceeding and request that the plants be included in the rate base, but that is pretty much after they have already been built. The Critical Mass survey included Michigan in its level three. That would be the lowest level. That is probably an appropriate placement for Michigan based on its history.

3 p.m.

Within the past several years, however, there have been major concerns regarding utility planning and investment decisions. Symptomatic of these are Consumers Power's Midland nuclear units. They are very expensive units and there is still no determination what to do with the units. The latest proposal is to turn it into what I imagine would be the world's most expensive gas-fired generation plant. That is a big concern.

Mrs. Grier: Say that again. Turn a nuclear plant into a gas-fired plant?

Mr. Linder: That is correct

Mrs. Grier: Has it been functioning as a nuclear plant?

Mr. Linder: No, it is about 85 per cent complete.

Mrs. Grier: It is like Darlington.

Mr. Ashe: I hope we have more sense than some jurisdictions.

Mr. Linder: They are looking at completion options and the leading option right now appears to be to turn it into a gas-fired plant. Detroit Edison, the other major utility in Michigan, has very high reserve margins and new plants coming on line, so it was hit very much by the downturn in the economy during the 1970s. Their forecasts have not been realized.

The result of this has been rapidly increasing electric rates in the state and financial instability of the utilities. Consumers Power has been as much on the edge as any other United States investor-owned utility in the past couple of years. The increasing electric rates, as well as being a burden to individual consumers, have contributed to problems in keeping industry within the state. Michigan is a very heavily industrialized state and that is very important. When electric rates have been increasing that fast, it is a matter of concern. The rust belt has been losing industry to the sun belt in the United States. While there are several reasons, increasing energy costs relative to some other jurisdictions is as one of them.

In response, the Michigan government did a brief study in 1984 that, not surprisingly, indicated there were problems with utility planning and a lack of good information and the ability or capability to do effective utility planning in the state. Governor Blanchard then ordered that a least-cost options study be conducted in the state and it is known as the Michigan electricity options study or MEOS.

Features of the MEOS are that there is a focus on developing analytical capabilities and data, especially on the demand side where data are very much lacking, and continuing use and refinement of these capabilities. It recognizes that utility planning is a continuing process and will have to be repeated as conditions change, as technologies change and as data and techniques for planning change and become more available.

Mr. Snell: Mr. Linder, will you expand on that point? In earlier testimony here, Ontario Hydro expressed a concern about a lack of data on the demand side. The committee might be interested in knowing some of the things Michigan is doing to develop or improve its capabilities in that area.

Mr. Linder: It is doing some primary data collection as part of the study, in particular in the commercial sector. It is doing primary data collection in the industrial sector as well. There seems to be a particular lack of information and data in these two sectors, which must account for 60 to 70 per cent, probably at least 70 per cent, of electricity use in the state. This includes audits of industrial firms as well as commercial buildings. Part of the MEOS process is to identify just how bad the data issues are. There is a somewhat more focused effort within the state on getting a final product out within a particular period.

While there is some primary data collection ongoing, they realize they cannot do it all at once. In particular, metering of end uses takes a long time to plan for, to establish, collect the data for and process and incorporate in the analyses. Part of what they are doing is relying on secondary data sources.

There are other jurisdictions and utilities that are ahead of Michigan in this regard. There have been some industry-sponsored data collection efforts by the Electric Power Research Institute and others. In part, they rely on the secondary sources, but they realize that on the demand side in

particular there is a lack of information. They are starting to correct that now and to set up a framework for analysis that will lead to further data collection in the future. Whether the responsibility for that is going to be on the utilities or the state is unclear at this time. My guess is it would be shifted to the utilities.

Another feature is that the idea is to develop techniques and a framework for doing a fully integrated analysis to look at subsidies within the area and at what needs to be done to look at demand-side and supply-side options on a level playing field. The idea is to look at a number of options in a consistent and joint evaluation of demand side and supply side.

The effort will also include explicit treatment of risk and uncertainty. It appears there is a value to planning flexibility so you do not get totally locked in to the large-scale investments that led to some of the problems during the 1970s. In the study, there is going to be explicit treatment of environmental and employment impacts and other social costs. They are attempting to look at it from a societal perspective. There is also recognition that values will differ among decision-makers.

They will be establishing a framework for identifying tradeoffs between least cost and other considerations such as employment in the state. It may be a part of state policy that it wants to increase or maximize employment in the state and this may be a tradeoff with implementing least-cost options. The idea is to try to look as much as possible at the implications of various options and see what the tradeoffs are.

Mr. Moore: Excuse me. On that, you do not mention any public consultation during the study. Is there a public consultation process as part of the study?

Mr. Linder: Do you mean in terms of hearings?

Mr. Moore: Yes.

Mr. Linder: Maybe I can address that. The answer is there are no public hearings. This is how they are dealing with it. Basically, MEOS is a co-operative effort among the various groups and stakeholders in the state with various perspectives. This is an important feature. The state government is very much involved. The regulators are involved. The utilities are active participants in terms of providing money as well as in-kind services for the study. Industry, environmentalists, labour unions, consumer groups and almost every stakeholder you can think of is involved very actively in the study. I should have added the Legislature. It is not actively involved in the sense of participating in the studies or contributing people to the work groups, but it is monitoring and reviewing what is ongoing in the study.

3:10 p.m.

Mrs. Grier: What kind of process is followed to get all those various groups actively involved?

Mr. Linder: First, they have set up an advisory committee with a representative of each of these groups on it that will set the direction and tone of the study. Second, they have set up work groups. There are six work groups. One work group is looking at improvements in efficiency of electricity production in the existing system. A second work group is looking at demand-side options. A third work group is looking at cogeneration and

self-generation options. A fourth work group is looking at new power plant options. A fifth is looking at demand forecasting. The sixth work group is in charge of the overall integration of these pieces into the final analysis.

There are opportunities for these groups to have active participants in each of those groups. In particular, a member of the state energy agency or of the public service commission will serve as the facilitator or leader of the group. The utilities are very much involved. They have contributed quite a bit in terms of in-kind services for their members to participate actively in the study.

They now are contracting to consulting firms and the like to develop individual pieces. They will be managing and looking at and pulling all that information together. ICF Inc. is providing management support to the study and we are also providing the principal support for the integration of the analysis for the sixth work group.

To go along with this, the goal, and I underline "goal," is to develop a consensus among these organizations on important factors to be included in utility planning and how they are to be incorporated in utility planning. Particular laws and regulations may be an outgrowth of this where they find things lacking, but this has yet to be determined. The focus now really is on developing capabilities and insight into the available options in the planning process, ways that planning can be approved in the state.

In terms of some summary slides, we can see that the active involvement of legislators and regulators in utility planning in the United States is a recent phenomenon, but the prospects are that this active involvement will increase in the future. There are many models to choose from among the states. My judgement is it is too soon to tell which is the best. We cannot say rates will be lower and utilities will be more financially stable in a state following one path versus another.

However, there are some important features that are related to or possibly define the level of activity. These include legislation establishing regulatory authority in the area of planning, the capability to do independent reviews and analysis, and the availability of sufficient resources for the regulators and the utility to develop detailed plans and to address societal issues and tradeoffs. The planning process and regulation is tied directly to investment decisions. This leads to the issue of accountability for the utility as well as for the regulators.

I apologize for the platitude, but more regulation is not necessarily better regulation. Success will depend on the interest, competence and style of the utility, as well as on laws and regulations. It looks as if there can and should be a balanced role of regulators and utilities in the process.

I also should mention that there is extensive utility interest in features of least-cost planning. As a follow-up to some of the work we have done for the Edison Electric Institute, we conducted a survey of utility companies to look at some of their planning practices. These results have not yet been compiled and documented, but some preliminary results indicate there is extensive interest in looking at demand-side options and innovative supply-side options. A number of utilities explicitly treat risk and uncertainty in their forecasts and plans, and the utility industry in the United States has been in the forefront of developing new planning tools and data. This is true of both individual utilities as well as the Electric Power

Research Institute. The impetus in this area has been coming from the electric utility industry.

Further, cost-effectiveness criteria are guiding investment decisions, and they are looking more at least cost. One of the reasons is increased market competition. This provides an incentive to understand customers and their uses of energy and to make least-cost decisions.

Some factors in the US that are increasing market competition include cogeneration and small power production; utility capacity and energy surpluses, which present the opportunity for marketing outside a utility's service area--bulk power sales; Canadian imports and industrial decisions on locations and expansion. The utilities want to keep what they have in their service areas and to try to attract industry if they can. There also is competition from other fuels and renewables technologies. For example, the American Gas Association and the Gas Research Institute have put a lot of money into looking at efficient gas air conditioning units. There are some traditional electric markets that are being taken up by gas, so the challenge has been taken up.

Those are my remarks.

Mr. Chairman: Thank you very much, Mr. Linder.

Mr. Ashe: Could you put the last chart back up? Do you have an opinion or a statistical ranking of those five items in terms of competition from the most important to the least important?

Mr. Linder: Again, that varies by state. For example, cogeneration has been very big in California and some areas such as that, as have Canadian imports in New England. A lot of the "industrial decisions on location, expansion" has been in the Pacific northwest, where Quebec is trying to lure away the aluminum smelters and so on. On a nationwide basis, I would not like to try to indicate which was the most important. They all have varying degrees of importance, and in one jurisdiction, one will be more important than another.

Mr. Ashe: Which of the four main examples, the four states you went into in some detail, has a current rate structure close to Ontario Hydro? You are familiar with Ontario Hydro's, I am sure.

Mr. Linder: Not totally.

3:20 p.m.

Mr. Ashe: As you know, it depends on the nature of the service and what have you, but we are talking in round figures of--what, four cents a kilowatt hour in residential?

Mr. Linder: I am not sure any of them are that low.

Mr. Ashe: I did not think so. Are any of them double for residential?

Mr. Linder: No, I do not believe so. I would say that they are probably six cents or so. I do not believe that any of them are as high as New England, New York, New Jersey, etc. Basically, in North Carolina the utilities are nuclear and coal based. In Michigan, Nevada and Ohio they are coal based.

I would say that they probably have fairly comparable rate structures, around six cents.

Mr. Charlton: You said at the end of the presentation that you were not yet ready to comment in terms of what might be the best approach of the ones you described for us. Can you help us with what might be the best way to approach the thing anew ourselves. At the end you mentioned that the Michigan study was going to be the most comprehensive one done yet of all of the states. Is it your feeling that no matter what comes out the other end, regarding the best approach to power planning, the best approach to trying to determine how you are going to do that is to take the comprehensive route?

Mr. Linder: There is somewhat of a difference in comparing that with the Nevada example. In Nevada, the regulators are saying: "You will do planning, following steps A, B, C and D. You will use these methods and tools. We feel that this is the most appropriate and best way to do planning and therefore you should follow these procedures and use these particular tools." In Michigan, the idea is that the state wants to keep a much more active role in planning and not be only in a review situation where it takes and evaluates what the utilities give it. They want to be directly involved where they can get their policy perspective included in the utility plans.

Mr. Charlton: Yes, that was what I was getting at in terms of the planning process; not reviewing somebody else's plan after it is already done but how to approach the planning process itself. If we are attempting to develop a strategy for Ontario whereby we shall get involved in the planning process instead of simply being involved in reviewing what comes from the utility, what is the best approach for us? I am not asking you to comment on what will have the best result, but what will be the best approach to our involvement in the planning process, and to the planning process itself. Would it be better for us to look at what is going on in Michigan where they are taking the most comprehensive approach that has ever been taken, in order for us to learn?

Mr. Linder: I may be biased but I think that is a good approach. Given that the regulators or government want to be directly involved in utility planning, that is a good approach to take, because you are pooling resources rather than trying to build separate independent capabilities. The idea of having various stakeholders involved in the process is very time-consuming and resource-intensive. There are a lot of different perspectives on what should be looked at and how it should be looked at. There are costs associated with that, but my recommendation would be to look at Michigan once again. If you want to be directly involved, look at Michigan as a model.

Mrs. Grier: Could you comment on that process occurring within the utility itself as opposed to it occurring within the regulatory body? We have heard from Ontario Hydro that they are having a fairly extensive public consultation process that involves bringing in the stakeholders and asking their opinions, which is quite different from an arm's-length group doing it as you have described.

Mr. Linder: As far as arm's length is concerned, the stakeholders are in the process themselves. They are active participants in the process in Michigan.

Mrs. Grier: Are the results likely to be different if the

stakeholders are brought together by the utility as opposed to being brought together by the Legislature or the regulatory body?

Mr. Linder: Not necessarily. It would depend on the objectives, what they hoped would come out at the other end of the process and how the opinions and involvement were weighted. I know that is not a specific answer, but that is as specific as I can be.

Mr. Charlton: I want to go back to this question of most comprehensive.

Mr. Linder: What I meant by that was in terms of addressing data development and tools, the idea of implementing a least-cost planning structure involving the stakeholders in the process itself of developing the planning capabilities, looking at environmental costs, employment impacts and all these societal costs--those sort of elements. I do not see all of that being pulled together in planning studies in other jurisdictions.

Mr. Charlton: Are you in a position to provide us with some more detail about those items and the approach to those items in the study in Michigan?

Mr. Linder: There has been a study guide published. There is a two-page description and a 100-page study guide. That can be made available. I am not sure that at this point there are any other products that would be relevant. The study will going on for another year or so, but that is available.

Mr. Charlton: The reason I think it is so important to us is that we also have an ongoing study, which is in midstream. As my colleague has suggested, it is a utility-based study at this point, but this committee has the opportunity to have some input into that along with some public consultation that is ongoing as well. Perhaps we can inject a number of things into that study that are not now included in it.

Mr. Linder: I can provide that for you. One thing that I should mention is the Midland Nuclear Center, which I mentioned before, and the options that are being looked at. This is very timely and some decisions need to be made. Obviously, just looking at that alone is a very large issue. What the electricity option study is going to do is critically review the utility study for that option. At this time, that was just something beyond the scope of what they felt they could handle.

Mr. Snell: Is this report coming out with a new planning approach for the utilities in Michigan? You are doing it for the Michigan government, are you not?

Mr. Linder: That is correct.

Mr. Snell: Not the utilities.

3:30 p.m.

Mr. Linder: Once again, the utilities are very actively involved. The planning approach, the tools and data will all be available to the utilities. If they choose to use them they can, but the models and data will reside in the state on a computer.

Mr. Snell: This is a study. Do you know what the end result will be? Will there be legislation or increased regulation? Will it make explicit the planning approach, or do you know?

Mr. Linder: There are going to be recommendations that will come out of this study, but I do not know that the recommendations are going to be specific enough to say that Michigan should have a power plant siting law. I think this study will serve to get that sort of thing discussed in a way it has never been discussed before in Michigan, and is likely to get that on the docket.

Mr. Snell: Is there a regulatory commission?

Mr. Linder: There is a public service commission.

Mr. Snell: I am interested in stepping back again to your earlier comments about the trend in government and regulatory commission activity in utility planning and the way they are going about the regulation and legislation. In a lot of other industries, sectors or policy areas, regulation and legislation is viewed as a fairly rigid or inflexible approach. What are your thoughts about the approach going on in the United States jurisdictions? Are they building the regulation in such a manner to be more flexible in utility planning? The two seem to be on different tracks in my mind and I am interested in your comments about that.

Mr. Linder: No regulation would be the most flexible regulation. As I mentioned, as far as the regulation itself is concerned, probably Nevada is the least flexible. It is the most prescriptive in terms of content, format, and methods.

Mr. Snell: Just let me stop you for a second, Mr. Linder, and excuse me for doing so, but is there a risk, given that you are also saying we do not know what is best? There is a lot of uncertainty with the planning technologies being developed. There is a lot of variance in opinion because it is quite immature in the life cycle of integrated resource planning concepts.

Mr. Linder: There is some risk involved in that. For example, it is required that load forecasting be done using very detailed end-use models. That is a reaction to using econometric models that did not perform well during the 1970s, but it is not clear that the end-use models would have done any better. There may be some buzz words and techniques that are in vogue now, which in the end may prove to be unworkable. One of the problems with end-use models is that often your results are really driven by your assumptions, so there is always a risk to inflexibility.

To go on, I mentioned that flexibility in planning is associated with the idea that there be a portfolio of options and there be some things held in reserve or that focus attention more on investments that have a shorter lead time. In planning we know that we are dealing with the future and, by definition, the future is uncertain. My first slides, where I contrasted the period before the 1970s with the period after the 1970s, showed what happened when a certain set of conditions occurred in the future when we were not prepared for them.

It may be that the least-cost option, in an expected value sense, might be a large central station generating unit. However, there appears to me to be some value to flexibility and in some shorter lead-time investments that you can bring on line more quickly or you can postpone without a lot of financial consequences finding their way into the portfolio as well.

Mr. Snell: How are the utilities responding to what really are significant increases in regulations since the early 1970s, as you pointed out? We know that they resisted it along the way, but do they look back on that any differently now in the direction that some of the regulation is taking them, in your experience in dealing with utility planners?

Mr. Linder: That is hard to answer. In some utilities there is more involvement. As I said, the utilities have been interested in least cost in the sense of looking at generating options that in the past have kept utility rates low. They were building larger units when it appeared that there were economies of scale associated with those larger units.

One of the purposes of my last slide was to indicate that there are incentives for them beyond regulation in the United States in order to try to keep costs as low as they can. There are some transitional problems and, as I said, I have spoken with some of the planners in Nevada at the utilities. They see a lot of resources that have to be devoted to planning. Their individual choice might not be to devote that many resources to planning.

Mr. McLean: Is the Hoover Dam in Nevada?

Mr. Linder: Yes.

Mr. McLean: Not in Arizona.

Mr. Linder: I am trying to think which dam-- There is one right outside Las Vegas.

Mr. McLean: I think it is in both.

Interjection: Yes.

Mr. Snell: The fact that there are no major supply options--at least, we had a presentation, and I am not sure whether it was yours; I am getting some of them mixed up--but one presentation we had said there is no major supply option for generating facilities planned by a large number of utilities in the US. Is this as a result of increasing regulations and involvement of government utilities, is it a function of utility business sense or is it both?

Mr. Linder: It is probably both in the following sense: First, if the utilities were allowed to place large units that produce excess capacity fully in their rate base, then they would be able to pass the rate increases on to the ratepayer. There would be some falloff in demand for electricity, which they would not like to see, but financially they would not be at risk. In that case the risk would be borne by the ratepayer and not by the utility.

However, in part because of regulation, in that there is not the rubber stamping, as I mentioned in one of my first slides, of putting utility plant into rate base, the investors now are sharing more in that risk. It is almost a chicken-and-egg situation where the business sense and the regulation are really meeting.

Mr. McGuigan: Mr. Linder, on one of the graphs you showed us--it does not give a page number--it shows earned rate of return on equity and prime interest rate.

Mr. Linder: Yes.

3:40 p.m.

Mr. McGuigan: It shows that from 1960 until 1980 the earned rate on equity was running around 12 per cent, which makes it a pretty good investment. The prime interest rate in 1960 was down as low as zero; in 1980 it came up to 12 or 13 per cent. Actually, at that point there was no spread between them. Where has that moved since 1980? Has that continued to cross the line? Where have they gone since 1980?

Mr. Linder: During the early 1980s they remained very close, but in the last two to three years the earned return on equity has been more or less established by the regulators; there is a maximum earned return that the utilities can earn. The prime interest rate has gone down. I do not know what it is now, but it is more towards eight.

Mr. McGuigan: Eight, nine.

Mr. Linder: Yes, somewhere around in that area. It may even be lower than that right now, but you are seeing more of a spread coming back. What has happened as a result is that, whereas during the period in the 1970s and early 1980s where the market value of utility stocks had gone down below book value, now the market value has gone up above book value in almost all cases.

Mr. McGuigan: Would it be fair to say that this narrowing of the spread, even though today it is a little better, has increased the interest of the United States utility companies in cogeneration and in conservation? It seems that they were at a point in 1980 where there was no point in reinvesting or getting any larger because they were not going to earn anything on it.

Mr. Linder: That has certainly contributed to it. As an illustration, we had been involved in the past in some of the hearings that have gone on in North Carolina, which I referred to earlier, where there have been reviews of the utility forecasts and then a comparison of those with the independent forecasts of the state. It seemed that traditionally the utility forecasts would be higher, more optimistic than the ones produced by the public staff of the commission.

Then when the financial situation turned worse for the utilities, they were coming up with forecasts of demand that were a lot less than the independent forecasts. The reason they were a lot less was not that they were necessarily looking at increasing prices and reductions in demand but rather that they were looking at investments in load management and conservation. That did put them in a situation where there was very little interest in building new central station plants.

Mr. McGuigan: That is somewhat in contrast to the situation here in Ontario, where you do not have to make a return on equity. Of course, you have to earn enough to offset the interest, but there is no return on earned equity.

Further on in your presentation you mentioned the debate going on about the 1990s, whether new plants are required. Mr. Campbell, the chairman of Ontario Hydro, when he was here read from an editorial in a US economic magazine that said we should be planning now and going ahead in the 1990s because we are going to need capacity in the 1990s. Can you tell us anything about what they are saying about the 1990s in the United States?

Mr. Linder: Once again it depends on whom you talk to. The US Department of Energy feels that we will need more capacity and that we should be planning for it. There are other government agencies and private people who believe that we are not going to need it and that the energy services can be provided through cogeneration, conservation and load management.

A lot really depends on a number of things that need to be predicted and that are very hard to predict. One is technological change and the second is where oil prices are going to be. How is that going to impact, first, on the economy and, second, on choices between fuels? That is a very critical factor. I have seen estimates on both sides; some say that we need limited capacity, and others, that we need substantial capacity. If nothing else, there is going to have to be some building for replacement.

As I mentioned earlier, Edison Electric Institute and some others are forecasting around a 2.5 per cent to three per cent annual growth rate. That would imply that, at least in the middle to later 1990s, we will need some capacity.

Mr. McGuigan: What it really comes down to is that it is anybody's guess.

Mr. Linder: Unfortunately, that is the case and that is what you are up against in planning. That is why, if at least you can identify the critical items that will influence that decision and, once again, my call for flexibility in planning, then maybe you can set your long-term plans. Then, as conditions turn out to be different from what you had anticipated, there is at least some flexibility so that you can adjust to and it is not too costly for you to adjust to meet those differing conditions.

Mr. McGuigan: A nuclear plant that consisted of several units but was built on the basis of one unit at a time would probably fit the description you just gave of having some flexibility.

Mr. Linder: It could fit the description if the site were all picked out. I am not familiar with regulations up here, but in the US there are siting requirements and licensing requirements having to do with safety of operations. Designs have been changing, etc. I am familiar with the fact that they are built much more efficiently and probably in a much lower construction time and time to operation in Canada than in the US. It is possible that that could serve as part of the plan.

Mr. McGuigan: One of the advantages--and, of course, it has disadvantages to it, too--of having one type of generator, the Candu, is that we do have a lot of experience in that particular kind. Probably now we might be able to put one up in a shorter time and so on.

Mr. Linder: What is lead time typically?

Mr. McGuigan: It has been 10 to 14 years, but there are people who think it can be halved, mainly on the matter of experience.

3:50 p.m.

Mr. Linder: It would seem to me that 10 to 14 years is really outside of the bounds of-- Ten to 14 years is not that much different from a major base load plant in the US. What people are looking at to supplement central station would be things like these package boilers, combined-cycle gas

or coal, gassified combined-cycle units, which can be put up in a couple of years.

Mr. Chairman: Thank you, Mr. Linder.

Mr. Linder: Thank you.

Mr. Chairman: This committee stands adjourned until 9:30 tomorrow morning, when we will hear from the Ministry of Energy.

The committee adjourned at 3:51 p.m.

CA24N
XC 2
85N22

N-47

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

TUESDAY, APRIL 15, 1986

Morning Sitting



SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Ashe, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, R. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Polsinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitutions:

Brandt, A. S. (Sarnia PC) for Mr. Jackson
Shynko, Y. R. (High Park-Swansea PC) for Mr. Gordon

Clerk: Carrozza, F.
Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy
Richmond, J., Research Officer, Legislative Research Service
Snell, B., Consultant; with Canada Consulting Group Inc.

Witnesses:

From the Ministry of Energy:

Kerrio, Hon. V. G., Minister of Natural Resources and Minister of Energy
(Niagara Falls L)

Johnson, J. M., Director, Legal Services Branch

Lundeen, R., Director of Operations, Energy Policy and Planning Division

Allan, D. M., Deputy Minister

MacOdum, I. B., Assistant Deputy Minister, Energy Policy and Planning Division

Shervill, P., Manager, Electricity Section, Energy Policy and Planning Division

Dominy, G., Manager, Finance, Rates and Utilization Section, Energy Policy and
Planning Division

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Tuesday, April 15, 1986

The committee met at 9:39 a.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: I see a quorum. We are pleased to have with us the Minister of Energy (Mr. Kerrio), Mr. Jack Johnson and Mr. Richard Lundeen. We are in your hands, Minister.

Hon. Mr. Kerrio: Members of the committee, the chairman has introduced Jack Johnson to my immediate left, our director of legal services, and Richard Lundeen, director of operations, energy policy and planning. They will participate through this involvement of the ministry.

I am pleased to meet with the committee today. I appreciate your interest in seeking the views of the ministry as you discuss choosing energy options and planning the electricity system in Ontario. Before I begin, I want to say the government was pleased with the select committee's prompt attention to its assignment and the dispatch with which it tabled the interim report on Darlington. The government expects to respond to your report early in the coming session.

This morning I would like to speak to you about how the government and Ontario Hydro develop and implement policy related to electric power and to planning the electrical power system. The deputy minister will participate and he will be along shortly. I have introduced some senior staff, and later on I will introduce others who will be involved.

First, it is our intent to review for you the existing framework for energy policy and planning and how the process in place is applied to projects currently under way. I hope this will be helpful to the members in understanding the basis from which we are working to strengthen our relationship with Hydro.

Second, I will take a few minutes to speak to you about the government's perception of the current study under way at Ontario Hydro to assess the options for electricity demand and supply after Darlington.

Third, I have asked Bruce MacOdrum, assistant deputy minister, energy policy and planning, and Paul Shervill, manager of the electricity section, to review for you how the planning process is evolving now. As members know, there has not been a major new electric power generating facility proposed in this province for nearly ten years. Nevertheless, the ministry has maintained a concern for the next decision-making process.

I might interject that the process for some of the transmission lines is now in its 20th year from the time we decided we should be looking at the lines, and they are not built yet. It is hard to believe 20 years could elapse from the first plan to the ultimate building of the lines.

Most recently, planning guidelines have been designed for Ontario

Hydro's consideration in the current study. We would like to take you through both these policy guidelines and the work the ministry is doing in concert with the demand and supply options study.

Finally, Duncan Allan, the deputy minister, and George Dominy, manager of our finance, rates and utilization section, would like to talk to you about the work we have planned and under way at the ministry on conservation and demand management policy and our views on supply options outside Ontario Hydro's system, specifically cogeneration and small hydro. In many ways, this work is like that of the committee. It is intended to complement the work being done by Ontario Hydro and to contribute to this important debate and involvement of this committee. It will also ensure ministry staff are well prepared to review Hydro's reports.

Now I will ask Jack Johnson, director of legal services for the ministry, to set the stage for our presentation with an explanation of the current legal framework in which the ministry, Ontario Hydro and the Ontario Energy Board operate. Following Mr. Johnson's presentation, Richard Lundeen, director of operations in our energy policy and planning division, will describe how this legal framework has worked in practice, using Ontario Hydro's eastern Ontario transmission project as a case in point. I am sorry, Richard, I pre-empted you in talking about that very subject matter.

I am very pleased to ask Jack Johnson to tell the committee what we are doing in regard to complying with the legal framework in the ministry.

Mr. Johnson: I propose to outline very briefly what I call the legal framework for decision making. I will move over most of it pretty quickly because I think it is rather familiar to you and I will hit some of the points as we go along. If you are following along in the material in front of you, on page 4 I have outlined the three players:

The Minister of Energy has wide responsibility for energy policy and co-ordinating policy and development for the province and a duty to administer the Power Corporation Act and the Ontario Energy Board Act. This all is in the Ministry of Energy Act. The Treasurer of Ontario has his responsibility for the finances, credit and economic policy of the province--I will come back to that point in a moment. Then the object of the exercise is Ontario Hydro.

On page five, there are a few points about the nature of this corporation. It is a rather unusual beast. It is a corporation without shareholders or members, what I call a statutory corporation. It is a legal person that has only the power that is given to it by the Legislature in the act. The act states that the corporation consists of its board of directors.

We look next at the board of directors. They are appointed by the Lieutenant Governor in Council. There is a five-year term for the chairman and a three-year term or less for the other directors. They can be removed only for cause.

What are their powers? I have quoted section 4 because that is the key to what the board can do. The answer in colloquial terms is just about everything the corporation can do, "The business and affairs of the corporation are under the direction and control of the board." This mandate is virtually the same as you will find in the Business Corporations Act for any private sector corporation. There is a close analogy there.

When you look at an individual director and ask what is his or her

responsibility, we use the word "fiduciary" or "trust". A director has to act in the best interests of the corporation. I will come back to that in a moment. Let us look at the next point, which brings all these points together. You might ask, "What is the power of the government to direct the board of directors how to act on a particular matter?"

First, there is no provision in the statute for the government to give a direction to Ontario Hydro. Second, shareholders have rather limited powers in corporations, as we all know, but they do have some powers to bind their directors. Ontario Hydro has no shareholders, so that avenue of control is not available.

Third, we come back to the duty of a director. Because a director has a duty to act in the best interests of the corporation, directors have to retain their discretion and cannot be bound by what they may be told, either by the Lieutenant Governor in Council or the minister. That does not mean they should not listen. It simply means that as a matter of law, the minister cannot direct a director how to vote.

Mr. Sargent: You said the Legislature has no control over Hydro, but it would have through the minister.

Mr. Johnson: No, sir. The Legislature itself has control because it can always pass a statute, but short of that, under the legislation as it now exists, as a matter of law the minister cannot direct the board how to act on a particular matter.

Hon. Mr. Kerrio: The whole function is only answerable to the board and not beyond that.

Mr. Sargent: They are more powerful than the government is then, if they can make a decision you do not agree with.

Hon. Mr. Kerrio: I think the former minister was told that. That is right.

Mr. Sargent: I do not agree with that.

Mr. Johnson: I should continue because I do list some of the various controls there are, but that is one that is not available.

Hon. Mr. Kerrio: We will not talk about the Darcy lever.

Mr. Johnson: I hasten to emphasize that what I am talking about is the law. As a matter of common sense a director should have regard to what the government is saying. We hope that in most cases, or in almost every case, a director will find that when he exercises his discretion it brings him out to the right answer, whatever that may be.

9:50 a.m.

I might mention a device that is occasionally referred to: the memorandum of understanding. There was one in existence for Ontario Hydro from about 1982 until 1985. It is an agreement between the minister and board, but it is not intended to alter the legislative arrangements. In my view, a memorandum never could override the statute or the independence of the board of directors, but it did outline the administrative relationships. There is no such memorandum in force now.

Having outlined the powers of the directors, I would like to go to point 3 on that page, the powers and purpose of Ontario Hydro as a corporation. I have quoted at considerable length section 56 of the act, which essentially says that the business and purposes of the corporation are all the things to do with power: generation, transmission, distribution, supply, sale, etc. It is a broad grant of authority but it is limited to matters dealing with electric power.

That is the first thing to note. As long as it is dealing with electric power, it has very broad powers to act, with one major exception--and that is what I have indented six lines up from the bottom of the page--"except with respect to". These are certain matters that the act has said cannot be done unless the Lieutenant Governor in Council has first given authority. There are a number of specific provisions in the act which I will be touching on in a moment. With those exceptions, and provided it is dealing with electric power, Ontario Hydro as a corporation has very broad powers.

If you want to go away from electric power, for example, in 1981 when the government wished to have Hydro offer energy conservation programs and to make some loans as part of that program, the government amended the Power Corporation Act so as to deem that to be part of its business and powers it is authorized to carry out. Without that, Hydro could not have done it.

Interjection: And the energy centre at Bruce.

Mr. Johnson: Yes, I believe in 1982 the act was amended to give specific power over the energy centre and over the sale of steam in general.

Those are the powers of Hydro and, as we have already seen, the powers are exercised by the board.

I am now on page 6, item 4, the main limitations. There are a number worth noting. The first one is what I call the power-at-cost requirement. Section 75 of the act outlines in great detail what goes into the price of power that Hydro can charge to the municipal commissions. When you shake them all down, it is essentially power at cost.

In 1981 when we wanted Hydro to do energy conservation programs, there were costs of those programs that could not be added to the cost of power without a statutory amendment, which was made. Later that same year or early in 1982, there was a cost arising from the rural rate differential and a statutory amendment was required to allow that to be charged to the municipal commissions, among others. The power-at-cost proviso is a limitation. It makes it very difficult, for example, to give subsidized rates if the cost of the subsidy will fall upon the municipal commissions.

Item 4(b) deals with the requirement of approval from the Lieutenant Governor in Council before Hydro can borrow any money, which is obviously a very powerful control in the hands of the government.

Mr. Snell: I did not quite get the point you made earlier about the cost going to the local utilities.

Mr. Johnson: Because of the requirement that the price of power that Ontario Hydro charges the municipal commissions is supposed to be power at cost, if you get other things that do not relate to the cost of serving those commissions, you cannot load them on to the price. My example was a subsidy for some other kind of rate. Anything you do that creates a cost can create a problem if you wish to load that into the price to the municipal commissions.

Mr. Snell: Despite the statutory changes that occurred, are there any limitations that still exist on the demand side for Ontario Hydro to incur costs that cannot be passed on?

Mr. Johnson: The act was amended in 1981 to give Hydro the power to do energy conservation programs. I do not want to hedge on that, but as a lawyer I would have to say, "Show me the program you have in mind and I will see if it fits." At the moment there certainly is some power to do energy conservation programs.

Mr. Snell: For example, is it allowed to give a rebate on a more efficient refrigerator, \$200 to exchange it. Is it allowed to pay money out?

Mr. Johnson: Offhand, I have some doubt.

Hon. Mr. Kerrio: We have to convince the federal government that it should give us that mandate first. It is important. We are looking for them to do that.

Mr. Snell: I am sorry. Which mandate?

Hon. Mr. Kerrio: Energy-efficient appliances to be mandated into our system.

Mr. Snell: I was not thinking of standards. That is another issue. I was thinking of rebates and encouragement.

Mr. Johnson: To actually give money to upgrade an appliance is something else. You may need another amendment in the act.

Mr. Snell: Thank you.

Mr. Sargent: Your limitation in item 4(a) of power at cost is assuming that there is no end cost to bury or dismantle. The big cost in nuclear power is the handling of its nuclear waste. How are you going to bury the towers or dismantle? That is a big cost. Why is that not a factor in 4(a)? It is an end cost that should be paid for by the current users of the power.

Mr. Johnson: My legal interpretation would be that you could deem that to be part of the cost of power and put part of the cost through to the municipal commissions.

Mr. Sargent: Thank you.

Mr. Johnson: I covered 4(b). There is not much to that.

I can go over 4(c) fairly quickly, unless you wish more. I believe Robert Macaulay from the Ontario Energy Board was here yesterday and spoke about section 37 of the Ontario Energy Board Act. That section is triggered only if, as and when Hydro decides it wants to change its rates.

Once it decides to change its rates, then that section comes into effect and Hydro has to give the proposal to the minister eight months in advance, the minister has to refer it to the energy board and the energy board must hold a hearing and issue a report four months in advance. Those are the obligations under the Ontario Energy Board Act. As you know, the result is a report that is not binding on anyone.

Mr. Chairman: Is there a statutory requirement for Hydro to notify its municipal customers of changes in rates?

Mr. Johnson: Statutory, no, but I believe a lot of Hydro contracts provide for a 60-day notice period. It is my understanding that Hydro has to come out with its final position before the end of October to bring new rates into effect on January 1.

I am over to page 7, item (d), and I will come back to that in detail in a moment, but just as one of the limitations on Hydro's powers. Almost anything it wishes to do in terms of building generation, acquiring water rights, acquiring land to build transmission, almost anything like that has to have Lieutenant Governor in Council authorization. That is a very important control, and I will revert to that in a moment.

I will mention a fifth constraint on Hydro's power which does not yet exist but which appears to be coming. Whether it is a constraint is up to other people. The Freedom of Information and Protection of Privacy Act will apparently apply to Hydro and oblige certain disclosures.

10 a.m.

I will now move to the subject of major project approvals and what is required there. The first is the one I mentioned a moment ago, the requirement to have the approval of the Lieutenant Governor in Council for any purchase of land, construction, etc. The wording of this is very important.

I have quoted it there in item 5(a), "The Lieutenant Governor in Council, upon the recommendation of the corporation, may authorize," etc. It is important that it is upon the recommendation of the corporation. In other words, the initiative is with Ontario Hydro. If it does not recommend, there is nothing for the government to approve. There is no means in this section for the government to take the initiative and say, "Hydro, you do something." The initiative is the other way around.

Item 5(b) mentions that, before the authorization I have just mentioned, for almost any project of any size, Hydro has to file an environmental assessment and go through the Environmental Assessment Act process unless it has an exemption, which is granted by the Minister of the Environment with the approval of the Lieutenant Governor in Council. Without it, Hydro must go through the full process of the Environmental Assessment Act, which requires that the process be gone through before cabinet can authorize the project.

Mr. Sargent: Hydro did not do that with Darlington. It was the city of Toronto.

Mr. Johnson: Certainly not with Darlington. That was before my time, but I understand it was because the act was just being brought into force then.

Item 5(c) is worth noting. Any time Hydro is involved in taking lands by expropriation, it must go through the process in the Expropriations Act, which provides for notice, hearing and compensation. If you get into a situation where Hydro is under both the Environmental Assessment Act and the Expropriations Act, then we have the Consolidated Hearings Act of 1981 which consolidates all the hearings into one process. My colleague Mr. Lundeen will be speaking more about that in a moment.

I have assumed that your major interest is in projects and project

approvals, but I might mention two other matters very briefly. One is the status of the municipal utilities. They are independent bodies under the Public Utilities Act and they are not subject to any general direction by Ontario Hydro.

Having said that, there are five very specific powers given in the act to Ontario Hydro. It approves the rates of the local utilities, their borrowings, their use of surplus funds and their bookkeeping methods, and it can audit them. Those are fairly substantial powers, but it does not have a general power to direct them to do something, for example, to enter into a conservation program.

The other point I might mention, because it is a whole subject to itself, is Hydro's general responsibility for the electric safety code, with a lot of power over the design, use, repair, construction, etc., of electric appliances and electric services of all sorts, along with an inspection power.

That completes a very brief review. I am in your hands.

Mr. Chairman: Carry on then, Mr. Lundeen.

Mr. Lundeen: I will carry on talking about the informal framework that operates within the formal framework Mr. Johnson described. Within this framework of legislation governing the formal relationship between the government and Ontario Hydro which Mr. Johnson has just explained, the Ministry of Energy is responsible for developing policy on electricity matters. This policy is normally developed in consultation with other ministries and with Ontario Hydro.

The ministry also represents the main channel by which government provides policy direction to Ontario Hydro. You will notice in Mr. Johnson's description that the word "policy" does not appear in the statutes at all. The policy that is developed is communicated to Ontario Hydro in a variety of ways, including letters, statements, speeches and reports. The policy advice provided by the Ministry of Energy can relate to virtually any aspect of electricity in Ontario, for example, rate structures, energy efficiency strategies and, more specifically from the perspective of the committee, matters relating to the planning and development of the electricity system.

The role of the government in the development of Ontario's electricity system can be illustrated most aptly by examining the current approval process for major Ontario Hydro facilities. I would like to take the example of Ontario Hydro's eastern Ontario transmission study and trace it through. This is still under way, as the minister indicated earlier. The project involves the provision of additional 500 kilovolt bulk transmission facilities to serve the Ottawa area, connecting in near Kingston.

Let me start near the beginning of this process. In July 1975, an order in council empowered the Royal Commission on Electric Power Planning, more commonly known as the Porter Commission, to examine a number of planning issues for the period 1983-93, including the need for and the timing of these same 500 kilovolt lines in eastern Ontario. The merits of alternative solutions to the transmission requirement that they identified were excluded from the commission's purview because they would be the subject of subsequent environmental assessment hearings. The commission carried out this assignment in the context of the broader review it had under way when this order in council was passed. It was a broader review of the principles and framework for planning the electricity system.

In 1979, the royal commission reported and concluded that additional transmission facilities were required in the Kingston-Ottawa-Cornwall area and recommended that the planning process proceed to its next phase. In its report, the commission expressed some concern that reliability of transmission was not up to province-wide standards already and would become worse by the time new facilities could be installed. The recommendations of the royal commission came to the minister and to cabinet, and the ministry supported the recommendations. Cabinet, through an order in council, directed Ontario Hydro to proceed to the next phase of the planning process.

The next phase was application by Ontario Hydro for approval under the Environmental Assessment Act. The approval process also included the provisions of the new statute, which Mr. Johnson mentioned, called the Consolidated Hearings Act. This act introduced a means of streamlining the approval process for major projects which previously could have required multiple hearings under several statutes. The Consolidated Hearings Act provided a public forum and a panel, known as a joint board, drawn from the Environmental Assessment Board and from the Ontario Municipal Board, to hear evidence and to make decisions for all relevant statutory requirements included in the project approval process.

I will go back to the preparation of the environmental assessment. The first part was the presubmission consultation process before Ontario Hydro completed the document. This was carried on with government ministries and with members of the public. The process identified issues and concerns at an early date in order that they could be addressed by Ontario Hydro in the formal environmental assessment and, it was hoped, resolved.

Public involvement took place at Ontario Hydro's public participation centres. They had a process under way for that. Government involvement took the form of meetings, discussions and reviews of the environmental assessment draft documentation from the perspective of individual ministry mandates. For example, the Ministry of Agriculture and Food is concerned with land use goals, particularly for farming. The Ministry of Citizenship and Culture is concerned with conservation of the province's heritage resources. The Ministry of Energy's interests rest with ensuring that proposals are consistent with government energy policy.

10:10 a.m.

In 1980, following such presubmission consultation, Ontario Hydro submitted its formal environmental assessment for review by the Minister of the Environment who in turn referred it to the government review team for consideration and preparation as required by the Environmental Assessment Act.

The Ministry of Energy's review in this and other cases focused on those elements of the environmental assessment that were considered important in energy policy terms, for example, the need for the facilities and whether a sufficient range of alternative ways of satisfying this need had been considered.

One area that was given attention by the ministry was the comparison of Ontario Hydro's load forecast with the ministry's own demand projections. The ministry examined alternatives such as conservation, load management, new local hydraulic resources being developed and the potential for other renewable resources, such as wood and biomass.

This review, which was issued publicly, was followed by a full public

hearing before a joint board which, in 1982, approved Ontario Hydro's recommended transmission plan--not the detailed routing, but the overall plan layout--and gave authority for Hydro to proceed with more detailed studies to select specific routes for facilities. Interested ministries, including the Ministry of Energy, provided evidence related to their individual mandates to the joint board.

In January 1984, Ontario asked the joint board to split the project approval into two parts, a west section, Kingston to Ottawa, and an east section, Ottawa to Cornwall. The Ministry of Energy again participated in the proceedings before the joint board, following which the board accepted Hydro's proposal. In May 1984, again after an extensive presubmission consultation with government ministries and other interested parties, Hydro submitted its detailed route stage environmental assessment.

This was followed by a second government review and separate hearings on the west and the east sections. Interested ministries provided testimony for consideration by the joint board. In both sections the joint board approved routes for location of new lines. The joint board's west section decision from Ottawa to Kingston was appealed to cabinet by the city of Kanata, the Kanata citizens' task force, the Hydro Consumers' Association and four individuals. Ministries reviewed these appeals and provided advice to legislation committee of cabinet for its consideration, which is the process cabinet follows in dealing with those appeals.

The board's decision on the east section has not been appealed and will become final upon passage of an order in council under the Power Corporation Act. This order in council will authorize Ontario Hydro to begin property acquisition and construction of the facilities. Assuming that cabinet does not grant the appeals on the west section, as the final step in the project approvals process Hydro will require an order in council before it can proceed with that project.

I hope this example illustrates the almost continuous involvement of the government through its ministries in the planning and approval process for major Ontario Hydro projects. The process provides ample opportunity for public involvement and ensures that Hydro's activities are in harmony with government policy.

Before the minister resumes, Mr. Johnson and I will be pleased to answer any questions relating to the formal structure and the informal relationships.

Mr. Chairman: Mr. Kerrio has some time constraints. Perhaps we should let him get on with his presentations. We have some time for questions.

Hon. Mr. Kerrio: That is very considerate. We are going to give committee members ample time to question any of my people in the areas in which they may have concerns. Thank you, Jack and Richard. It is important to have that information on the record for members. I hope they will find it helpful. They will be given the opportunity to raise questions later on.

I followed the work of the committee with interest, and I know how much effort has gone into the preparations for this phase of the hearings. I appreciate the members' contributions to its success. The past two weeks have been very demanding and I hope they will be just as rewarding.

For all the hard work, this is an excellent opportunity for you, as members of the Legislature, to become well informed about Ontario Hydro,

particularly this important demand and supply options study. It is valuable to the government and Ontario Hydro if you understand the issues that face the corporation and understand the implications of major planning decisions.

Your work as a committee reminds us of the importance of having an awareness of the views of others. Heaven knows there are many experts who are anxious to advocate their points of view. It is to the credit of the committee and its staff that you have brought together a range of experience and points of view that stimulate and challenge your thinking. We all hope your report will be a constructive contribution to electricity planning.

Ontario Hydro's study of demand and supply options is of paramount importance to the corporation. As well, there are many people beyond the company who share a concern for the future of our electricity system. Members of the Legislature, we in the government, individuals, businesses and interest groups all across Ontario care very much about Ontario Hydro and our energy future. My colleagues and I have received many letters on the subjects which your current deliberations are addressing.

These hearings provide an opportunity for individuals, industries and interest groups in the wider community to define and in some cases defend their views. I am pleased that you have received so many submissions on this debate. As legislators, in submitting your report, you will provide an important service to both the House and the wider public debate by contributing not only to the discussion of the planning process, but also to the development of a public review process.

I have said on numerous occasions that the work of the committees is essential for government. While acknowledging the strengths and achievements of Ontario Hydro and its well earned, worldwide reputation, this government does intend to develop a new outlook for our relationship with the corporation.

In your interim report last December you recommended further examination of the relationship between the government and Ontario Hydro. I would like to think that both Ontario Hydro and the government at any time agree such an examination can be healthy and beneficial. This is our expectation of your review. I look forward to confirmation of the strengths of the current relationship and some fresh insights and observations in areas where you feel the relationship with Ontario Hydro could be improved.

As minister--I am sure Mr. Campbell would say as chairman--we participants in this government-Ontario Hydro relationship necessarily have subjective assessments of what we are doing and how well we are doing it. I think I can fairly say staff of the ministry and of Ontario Hydro has its own appreciation of the legal framework which Jack has described. It would be helpful for all to have your comments from a different but related perspective.

When I appeared before you last October I said the government was awaiting with anticipation your advice on how its relationship with Ontario Hydro could be strengthened and improved for the benefit of all concerned and all involved. On several occasions since then I have spoken on the theme of government's desire that Hydro respond to changing times in Ontario. You are as aware of these changes as I am and together we are going to be part of them. As Minister of Energy, I am very pleased that we are able to restructure this committee. I am certain it is going to be ongoing and provide a lot of information to the government.

We are looking to Ontario Hydro to achieve further improvements in its

productivity. Ontario Hydro should seek opportunities to measure the efficiency of its activities against similar activities in the private sector. Greater diversity in the electricity system through the wider use of alternative generation and cogeneration will assist these efforts. Therefore, it is my hope that Ontario Hydro will be a vigorous promoter of these future options.

10:20 a.m.

I would like to ask Mr. MacOdrum, assistant deputy minister, energy policy and planning and Mr. Shervill, manager of the electricity section, to take you through the policy framework which the government has described for Ontario Hydro, to be used in their review of electricity demand and supply options. Bruce and Paul will describe for you the work which we are undertaking concurrently with Ontario Hydro's demand and supply options study so that we will be in a position both to contribute to Ontario Hydro's review and be prepared when Hydro's report is submitted to the government for review.

At this point, I would like to introduce to you Bruce MacOdrum and Paul Shervill.

Mr. Ashe: Is the minister going to be able to remain all morning? If not, we should have an opportunity now to pose a few questions to him if he has to leave.

Hon. Mr. Kerrio: Fine. Yes, I am prepared to do that.

Mr. Chairman: Prepared to do what? Stay here all morning or answer questions?

Hon. Mr. Kerrio: No. I have some time constraints but would not take from the honourable members the opportunity to question the minister within a reasonable time frame. I leave that to you.

Mr. Brandt: Can the minister indicate when he has to get away? We will try to work within that time frame.

Mr. Polsinelli: At 10:25 a.m.

Hon. Mr. Kerrio: Half an hour or so.

Mr. Brandt: We better move to questions then as my colleague has suggested.

Mr. Ashe: After hearing you before the committee early last fall, now in the early throes of spring I hear a little different tune than I used to hear about a year ago. Have you now found out with a year of reflection that perhaps Ontario Hydro is not quite as bad as you used to say it was?

Mr. Bennett: 'Fess up.

Hon. Mr. Kerrio: Perhaps if you could name the two tunes I could respond.

Mr. Ashe: I did not bring all the verse and section. If you like, we can go through Hansard and some others to see if there was a little different hymn book.

Hon. Mr. Kerrio: All right. On reflection, I can respond to that. That is a very valid comment.

Mr. Ashe: Good.

Hon. Mr. Kerrio: When I saw the honourable chairman and Mr. Grossman on TV last night I realized they were doing things in reverse. We are going to meet somewhere in the middle.

Mr. Ashe: I did not ask about them.

Hon. Mr. Kerrio: I know what you asked.

Mr. Ashe: I did not see that show.

Hon. Mr. Kerrio: Remember, you are allowed to ask any question and I am allowed to put my answer in any form I choose.

Mr. Ashe: That is right; as long as you do not get the bad habit of your leader of answering no questions.

Hon. Mr. Kerrio: No, I should be right up front with you. This is an excellent exercise. Her Majesty charges those people sitting on the other side with the responsibility of bringing up the concerns of the opposition members. They do that because they are charged with that responsibility. I had that responsibility. As minister now, when the questions are put to me, I am very willing to face up to the responses necessary and to pay tribute to Ontario Hydro. It is considered one of the finest public utilities in the world.

That is not to say I have changed my mind. I have said in this document that the major direction to Ontario Hydro in past years has been power at cost. If our industry is going to be competitive, one of the things we might have to look at now is maybe power at the best cost. I would like to talk about some of the efficiencies I asked about when I was on the other side and look at putting them in place with the help of this committee. I hope you will delve into those issues. I am certain we could use the help of this committee if it is broad-based and would give us some ideas as to where to go. You could say that.

Mr. Ashe: It is fair ball both ways.

Hon. Mr. Kerrio: I appreciate that.

Mr. Ashe: You made reference to Darlington in your opening statement. I read it, though I was not here for it. "The government expects to respond to your report early in the coming session," were the words you used.

Hon. Mr. Kerrio: Yes.

Mr. Ashe: What are your personal views at this time? Do you think, for example, from reading the interim report of the committee, that it is practical in a straight business sense--and I know you are a successful business man in your own right--even to consider spending 85 per cent of the capital costs to end up with a 50 per cent asset, namely the discarding of units 3 and 4 at Darlington?

Hon. Mr. Kerrio: I am beginning to learn some of the constraints imposed on cabinet ministers not to reflect on their own individual feelings

but to go where we need to go to get direction. I have some ideas.

One thing that has not been mentioned in your question, and I think it should be mentioned, is that from the time of the interim report, there was considerable control put on Inco and Ontario Hydro to reduce their emissions. That might play a major role, or at least, it is something we have to consider in bringing forward our report. That is the only thing that has happened since the report was put that is of real significance.

Without saying too much more about where the cabinet is going to go or the decision that will be given finally early in the opening of the House, that will have to be taken into account.

Mr. Ashe: As you and I both know, that is a very valid part of the component. Albeit if there was a shortcoming in the interim report of the committee, in my view it was exactly in that area. It did not recognize the very important aspect of nuclear-generated energy in the cutting down of the acid gas emissions. As you quite correctly identified, there are the further constraints that make it imperative.

Hon. Mr. Kerrio: Maybe something should be mentioned that is pretty important. It is rather disturbing that we are facing some \$4 billion to \$5 billion for Ontario Hydro to control acid rain. They are looking at that in a very positive way. When we look across the way at US, which is 10 times bigger than Canada, let alone the multiplier of Ontario, they are talking about the same amount of money, and only half of it is coming from the government.

Mr. Ashe: Yes, they should be spending \$50 billion.

Hon. Mr. Kerrio: We have to convince them that we are doing what can be done and that they should play a more major role.

Mr. Ashe: That is right. If we are spending \$5 billion, they should be spending \$50 billion.

Hon. Mr. Kerrio: I think it should be in proportion.

Mr. Ashe: I appreciate the demands, to some degree, of the two portfolios that you are carrying dually. One thing escaped in Mr. Johnson's overview of the legislative framework and Mr. Lundeen's overview of the operation of the ministry, particularly in an approval sense. There seems to be great avoidance of any involvement of the minister by direct reference where you are able to get involved in the activities of the Ministry of Energy, appreciating that the Ministry of Natural Resources is a very large and demanding ministry in its own right.

Hon. Mr. Kerrio: This is not something novel. You may recall that the former government joined the two ministries before. My leader has given me the challenge, "If they can do it, we can do it."

Mr. Ashe: I do not think you answered the question.

Hon. Mr. Kerrio: It is not something that is new.

Mr. Ashe: I was going to come to that as a supplementary asking your view of the future of the ministry. I concur; that is twice in a row, if you will, that the Ministry of Energy has been put in with another ministry. It is probably the appropriate one. Do you see that becoming a permanent amalgamation?

Second, you still did not answer my question. How much time are you able to give, on a day-to-day basis, to the duties of the Minister of Energy, seeing that at the moment the ministries are still clearly identified as two functions. I am not saying whether that is right, but that is the way it is.

Hon. Mr. Kerrio: I suppose I give it the time that is appropriate to do the work that needs to be done.

Mr. Ashe: How much is that?

Interjection.

Hon. Mr. Kerrio: Thank you, Andy. I think this will partially answer the question. There are many areas in the Ministry of Energy that we are now dispensing with--where we think the government does not belong--such as Suncor, the Ontario Energy Corp., and the drilling we undertook as a part of the Suncor acquisition. We are getting out of those things. We are going to do the important things in the ministry that are going to take considerably less time than the former minister was charged with in the two ministries.

In a sense, I could be two or three days doing nothing else but dealing with my people from the Energy side. We really do not break it down that way. Appropriately, on whatever the issues are of the day, we spend enough time to do it. I do not spend so much time each day to do it. Leading up to this, I have spent considerable time with my people. That is the way we do it.

Mr. Ashe: How many times during the week are you physically able to go over to the venue of the Ministry of Energy?

10:30 a.m.

Hon. Mr. Kerrio: I very seldom go over to the venue. What I do is have them come over to my building so my time is used to its maximum. They come over every day.

Mr. Chairman: Mr. Polsinelli has a supplementary.

Mr. Ashe: I will finish off very quickly. You and I both know Mr. Minister, that the business about Suncor and some of the other investments is a red herring because that operation was pretty well separated from the Ministry of Energy as a crown corporation. Whether you like any or none of their investments, it really did not take that much time of the minister. Somebody has misled you if they have suggested to you otherwise.

Hon. Mr. Kerrio: I cannot give you the last word, George. The fact of the matter is that I have been relieved of the responsibility of mines in the Ministry of Natural Resources which have gone to the Minister of Northern Affairs and Mines and taking out all those other responsibilities, I think these two ministries could be run very efficiently, as they are right now.

Mr. Ashe: Together or separate?

Hon. Mr. Kerrio: We will even consider that.

Mr. Posinelli: Following up on Mr. Ashe's point, I would like an explanation from the minister and perhaps his own opinion on this. It seems Ontario Hydro was established as quite an autonomous structure requiring a tremendous amount of government input on a Hydro initiated project. If they

initiate a particular project, at that point the various ministries trigger in and there is government input. Yet when a policy initiative is undertaken by government, it is communicated to Ontario Hydro through an informal framework such as letters, statements, speeches and reports, almost in the nature of advice which Ontario Hydro can either accept or disregard.

In your opinion, is that an appropriate structure, or should the structure perhaps be changed so there is more direct involvement from the ministry in having a different legal framework established so Ontario Hydro would have to accept initiatives from the ministry rather than take them as advice and either accept them or disregard them?

Hon. Mr. Kerrio: Under the Power Corporation Act, which has been well described to you today, we work within that framework. We are even charging this committee with the responsibility of putting forward recommendations as to where we more properly might involve ourselves with Ontario Hydro.

There is a bit of a contradiction in a sense that while under the Power Corporation Act, Hydro conducts itself and answers only to the board, we find there are other levers. For instance, when you move away from some of the direct involvement, such as in the energy centre at Bruce and when former minister Mr. McKeough, and it goes without saying, at that point thought he could trim \$5 billion to \$6 billion off Hydro's expansion, which was done, there are levers there.

I encourage this committee to decide, after examining the information that is put before it, whether we should be looking at more of a direct involvement by the ministry in Ontario Hydro. I am very much prepared to take a look at what might flow from this committee.

Mr. Polsinelli: I accept that and perhaps an explanation of the existing system. That is the system we have to work under now, because that is the system that has been established. Ontario Hydro says, "We are going to do X." At that point the government gets involved and says, "You can do X, but we are going to trim X."

Let us assume this committee advised government that, for example, instead of future expansions of additional hydro generation facilities, the appropriate route would be that of a conservation mode. This committee can make that recommendation, as can your ministry in whatever form you may choose, albeit in an informal process, and yet Ontario Hydro can come back to us and almost disregard it and then apply tomorrow for the creation of a new nuclear generation facility. At that point, perhaps all we can do is turn them down by refusing the approval to obtain the funds to create that facility.

I am getting absolutely no sense that the government can actually go in there and say: "This is a mandate. This is a policy direction that has been given to us from this committee. This is the policy direction we are undertaking as a government. Implement it." They do not have to do that at this point.

I am asking for your opinion as to whether you are satisfied with that structure or whether you might like to see an amendment to the Power Corporation Act to give the minister, the ministry and the government a more hands-on approach to the future electricity needs of this province and the future direction of Ontario Hydro.

Hon. Mr. Kerrio: I am not prepared to make policy at this table.

Interjection: I hope not.

Hon. Mr. Kerrio: Seriously, I am very anxious to hear what the committee has to say as a recommendation, but I hesitate to say what direction we can go in until there is a real study, until we have Ontario Hydro's input and the participation of the Ontario Energy Board, of this committee and of the cabinet. Some of the comments are quite valid. As George said, I made them myself from time to time.

Mr. Charlton: Perhaps we can come at this question in a slightly different way.

Hon. Mr. Kerrio: You might get the same answer.

Mr. Charlton: I am going to try to elicit a somewhat different response. I understand you do not want to make policy today.

In the description we had this morning and in all we have heard before this committee, the levers that exist to control Hydro are all subject to the fact that Hydro does its own planning and the reviews happen after the fact, once you have been presented with proposals and so on. Are you prepared to seriously consider altering the planning process to allow greater ministry input, some independent involvement and public participation in the planning process itself so we are not always in a position of considering Hydro's proposals once they are already studied and done.

Hon. Mr. Kerrio: I would say yes to that kind of proposal, because I have to share another important thing with you that is becoming very obvious to me. Ontario Hydro is very willing to have that kind of rapport and input, maybe more at the initial stages. I am certain that would be well worth considering, and I shall consider it, because I think Hydro is very willing to do that.

Mr. Charlton: Just following that context a little further, you say you are prepared to consider that kind of thing. Are you also prepared to consider making the statutory changes that would give that change in process some statutory legal validity?

Hon. Mr. Kerrio: If that were to flow from this committee, we would consider it. You would have to make some necessary changes, but we are willing to go in that direction.

11:40 a.m.

Mr. Charlton: In this committee we have heard extensive testimony about the potential for conservation and a number of other alternatives. We have had some presentations at one extreme and some at the other, but on average the testimony says conservation and the other alternatives to the present generation system in Ontario can provide an increasing percentage of the total power generation mix in Ontario and we should be looking at ways to see that those things are maximized.

What is your view on that? As minister, are you prepared to have a serious look at those issues? The context in which information has been put to this committee indicates others are looking far beyond the limited steps we have taken in those areas in Ontario.

Hon. Mr. Kerrio: There is another dimension that has to be considered very carefully. There are many areas we would like to take a direction in, and we find the public perceives it in a different way in many instances. Let me draw a bit of an analogy. We thought everybody wanted to drive smaller cars and shared the concerns about fuel efficiency and economy. That turned right around, and the next thing we knew they were demanding bigger cars.

We have to sell conservation. We have to sell a more efficient use of electricity, because when we talk about conservation, a lot of people think we are talking about cutting them off. One of the great concerns of the end user in this province is that the electricity is going to be there, because they have aspirations of doing things with electrical power. There has to be a will to accept a more efficient use of electricity. We could all be players in that if we could convince the general public that this kind of involvement is in everyone's best interest. I am not sure we have done that yet.

Mr. Charlton: I am not sure we have either. That essentially is why I led with the question about involving the public and other independent views in the planning process. That kind of input and those kinds of hearings are where that word will start to become public. I do not disagree that we have not done the job of selling a lot of that stuff, but given that you have expressed a willingness to move to a more open planning process of some kind, that can be part of the process.

Hon. Mr. Kerrio: Mind you, that can get you in trouble too. You saw what happened when I tabled those forestry reports. Alan Pope got really mad.

Sorry about that, Mr. Chairman. It is an unrelated answer.

Mr. Brandt: If I heard you correctly, Minister, you indicated you would be responding to the Darlington issue some time following the opening of the House.

Hon. Mr. Kerrio: Yes.

Mr. Brandt: Then what is the purpose of this committee going through all the supply-demand options and the issue of conservation if you already have a position relative to Darlington that you will be bringing forward that early?

Hon. Mr. Kerrio: I do not think we are talking about a very short time frame. We are going to have to look at the planning. I told you I was concerned about our planning process because we started looking at the western transmission lines nearly 20 years ago. I guess what I am saying is that while you might feel there is an intrusion on what the committee is doing, in the overall picture the committee is going to perform a very valuable function. I do not think it should be in terms of this time frame.

Mr. Polsinelli: I also remind Mr. Brandt that this committee is looking at the post-Darlington era, the supply and demand options once Darlington comes on line. However, I recognize that you are only substituting here.

Mr. Brandt: I have not lost sight of that.

Mr. Chairman: Let us not get into a debate.

Mr. Polsinelli: Of course I am not doing that.

Hon. Mr. Kerrio: This committee is starting to break down. I am disappointed.

Mr. Brandt: I wanted to be assured by the minister that the efforts and the work of the committee will be looked at in a very serious light. He has given me that assurance.

Hon. Mr. Kerrio: That is right.

Mr. Brandt: The post-Darlington issue is also one that is obviously before this committee.

Minister, I would like your views on another matter that is disturbing me and some other members of the committee relative to the activities of Ontario Hydro. It is the whole issue of the approval process. I am thinking of the Bruce-Essa corridor and the difficulties Hydro has encountered in eastern Ontario.

We have had a number of submissions before this committee indicating a number of different time frames that are part of the planning process Hydro has to take into account, specifically relating to how long it takes to bring power on stream and get it to the consumer. I can assure you those estimates have ranged widely. We have heard guestimates of 10 years and 12 years, and you yourself have used a figure of 20 years as perhaps being realistic in terms of getting that power to the person who requires it.

I recognize there is a need for the input of members of the public who are specifically impacted by a corridor, such as in the Essa situation, but there is also a counterbalancing need to reflect the views and requirements of those people who have to receive the power at the other end of the line at some time.

I wonder whether you might give us your position with respect to the environmental assessment process, Hydro's problems relative to this whole process and whether you think it requires a further review or modification to fine-tune the balance, if you will.

Hon. Mr. Kerrio: That is very acceptable as far as I am concerned. I have related my concerns about the time frame when we first talked about the western lines; it was nearly 20 years ago.

There is another facet of it that is quite disturbing as well. There is speculation--not speculation on what has been spent to this point--that locked-in power at Bruce has cost us \$200 million, and projected into the final stages of getting that power out of Bruce, we could talking about very close to \$400 million being added to the cost of power to the people in Ontario. Therefore, the comments are extremely valid.

There has to be some way we can address ourselves to the concerns of the people along the way in a time frame that not only is going to get our electricity moved from the generator to the consumer but also is going to do it in an efficient way so that tremendous loss should not happen again. That is one of the things the Ministry of Energy is going to have to encourage and get people to address: how we can more properly have those hearings done appropriately but in a reasonable time frame.

Mr. Brandt: I appreciate the minister's comments, because I share the view that there has to be some finality to the process. After adequate time has been allowed for the whole exercise of participatory democracy, there also has to be a time when the decision is made and something happens.

With regard to the cost of Ontario Hydro attempting to control acid gas emissions, you mentioned \$5 billion relative to the capital requirements. There is also the fact that we are discharging additional acid gas by not releasing the Essa corridor, and I would like your estimates as to what amount of acid gas that might be on an annualized basis; I think Hydro has those figures, or someone from the staff might be able to provide them.

When we take a look at the cost involved in the approvals process, if we are looking at a 20-year time frame, it is going to be increasingly difficult for Ontario Hydro to have a competitive power pricing policy with other jurisdictions because of the geography of their particular communities, such as Quebec with the James Bay power project and the things that are going on in Manitoba and elsewhere.

What we will find when we get through the entire system is that a kilowatt-hour of cost comes out at the bottom. As the critic for the Ministry of Industry, Trade and Technology and having served as minister of that portfolio, I have to tell you that the competitive position of our industries and the power cost to the householders in Ontario are things we have to be very sensitive towards. If we want to lose jobs in the future, if we want to take a major backward step economically at some point in this province, the best way to do it is to price our power beyond that of other jurisdictions.

When I look at this whole package, I come to the conclusion that unless we make some rather dramatic changes, we are going to find that the cost of electricity in this province is going to accelerate at a rate above and beyond that of other competitive jurisdictions.

I recognize there are a number of questions in what I have said, and I did not mean to make a speech or a statement, but I wonder whether you might reflect on some of those views and whether you share some of my concerns about the bottom-line cost of electricity at some future point, recognizing today's position on all those issues.

10:50 a.m.

Hon. Mr. Kerrio: What I did not mention in passing had to do with the grid, not only getting power from our own generating stations but also providing a network across the province where, when it is appropriate, we could be bringing power in from Quebec or Manitoba and in some instances from the United States.

I am not talking about buying or selling. I am talking about arrangements whereby Ontario Hydro could increase the efficiency of the whole system by being able to trade or manage the whole grid with all the people who surround us. That would have an impact on the price.

I share your concerns. I visited the west to talk to Mr. Zaozirny, the Minister of Energy in Alberta, because I wanted to mend some fences. I wanted to go out there and tell them that Ontarians are anxious to get along; if that industry is decimated out there, we are going to suffer for it here in the long run. In the short term, we should get the benefits of the price advantage, but we had better look to see that we do not knock a player out of

that business, which is very much a concern of mine, as is electricity going into our manufacturing base.

When you think of what the manufacturing base in this province provides, we would do well to make the price of energy supply to it a major priority. We are talking about going into thermomechanical pulping, which is going to let our pulp industry be competitive with offshore Scandinavian countries that are really beating us in some of the world markets. As a person who is concerned about industry, you have every right to look to us to say, "We have an important role to play to keep our industry competitive."

I think we are doing that. My people are working on that. That is why we are not only talking about hydro at cost but also injecting somewhere the words "best possible cost." Some of it has to do with the transmission, and some of it has to do with other efficiencies we could become involved with. Yes, I have a real concern about that area.

Mr. Brandt: I think you have to look at hydro at cost and hydro at best possible cost but also hydro at a competitive cost. We have to look at what our situation is relative to other jurisdictions.

I will try to be very brief, but I have a couple of other quick questions.

Can you or some of your ministry staff estimate the cost of the approvals process relative to the two major corridors, namely, the Bruce-Essa corridor and the eastern Ontario corridor? What would you estimate the approvals cost has been, either in terms of delay in locked-in power or staff time and so forth? I am not looking for an exact dollars-and-cents figure but a global estimate.

Hon. Mr. Kerrio: On the one side, I have given the figure that it is about \$200 million now in losses and that it might go to \$400 million before these transmission lines are put in. As to the cost of the hearings up to this point, unless someone has the figures here, we would have to get them to you. Does anybody want to hazard a guess on that? Duncan, when I need you, where are you?

Mr. Allan: I will hazard one if you want me to.

Hon. Mr. Kerrio: No, I will get you later.

Mr. Brandt: This would not be a first for the deputy minister. I would like to hear his guess.

Hon. Mr. Kerrio: It might very well be.

Mr. Brandt: It is important that we start to put those costs in some kind of framework.

Hon. Mr. Kerrio: That is an excellent question.

Mr. Brandt: It goes back to the previous position I was taking, that we have to start getting realistic about what this process is all about.

Hon. Mr. Kerrio: That has to be factored in. When you think of four or five per cent of cost being added with \$5-billion scrubbers and then locked-in power and hearings, we are adding a great deal of cost to a system that does not generate electricity. I think that is where you are coming from.

Mr. Brandt: That is right. I am trying to respect your time frame. The question I have not had answered yet in regard to my earlier statement was the locked-in acid gas emissions as a result of not freeing up the Essa corridor. I wonder whether we could have an annualized tonnage figure relative to that problem.

Hon. Mr. Kerrio: The other two answers will be forthcoming.

Mr. Brandt: All right. My final question relative to this entire issue is whether the minister has any reservations about any proposed future purchases of power from either Quebec or Manitoba as one means of delaying or perhaps setting back indefinitely future power generating requirements in Ontario. You made some comment about that in passing. I wonder whether you could give us your own views on power purchases from other jurisdictions.

Hon. Mr. Kerrio: It is happening. To share with you something that is ongoing, we are looking particularly at Manitoba to make some kind of arrangements, if it is at all possible, for some of its capacity that would be quite properly brought into Ontario. There are some factors involved with some of the things Quebec might be asking us to do in transmission that might lead us to be able to negotiate some purchases from its hydraulic capacity. Discussions are under way with both about that very thing.

Mr. Brandt: One final question. I wanted the minister and/or his staff to give us some indication of what the breakout is of the 20-year time frame for construction, approval and freeing up of the power, obviously, in a proposed project. How do you break that out in terms of the time required for each of those various steps?

Hon. Mr. Kerrio: I will give an overview and then have one of my people respond, if he can, to breaking it down.

I took the very worst scenario when I was talking about the corridors in southwestern Ontario, going right back to the original will of Hydro in 1974-75 to start looking at that direction. That is the very worst scenario. I brought that into perspective to show what can happen if you stumble a little. We had to have the hearings over again and those sorts of things.

To break it down into the other parts, I would ask one of my people to share that with you. Mr. Johnson, would you care to speculate on that other part of it, the legal aspect and the other involvement?

Mr. Johnson: We will probably have to get back to you if you want a chronology and breakdown. I know because of my involvement in the hearings that, in the southwest corridor, assuming that everything will be completed by late 1986, they are talking about its taking probably three to four years to construct, if that is the area you are concerned about. Beyond that we would have to get back to you.

Mr. Brandt: Could we have a chronological breakout of what those time frames are? It goes back to my central point that we are perhaps misleading the public inadvertently with respect to what power costs really are when we lock in a huge number of dollars reviewing the project, going through various assessments of the need and requirements of that particular project. Ultimately, that is added to the bill, and I think the public have a right, quite frankly, to know that on one side they are being protected environmentally, aesthetically and in all respects, but on the other side there is a cost. We have to keep that cost in some kind of balance and some kind of perspective.

I wanted to make that point in a very direct way to the minister; I am sure he is aware of it. It is important that this committee look at that aspect of it as well, because perhaps we have the system somewhat out of balance in some respects.

Hon. Mr. Kerrio: I think the figure is going to be sizeable.

Mr. Brandt: As a final comment, I would encourage your ministry to have--and I am sure you do to some extent--some hard-nosed discussions with the Ministry of the Environment with respect to the environmental assessment process and to make absolutely certain it is as finely tuned as possible so that Hydro is able to move its requirements in a realistic time frame.

Mr. Haggerty: You see the difference when you are sitting in opposition.

Mr. Ashe: Andy must have had tongue in cheek.

Mr. Brandt: I was faced with much the same problem. But I do not have the problem now; the minister has. I want to make sure he understands the problem, and I know he does. I am trying to be helpful in a very positive way here, and I am sure the minister accepts that in the light in which it was offered.

Hon. Mr. Kerrio: There was never any question.

Mr. Brandt: Thank you. I knew that.

Mr. Chairman: Mr. Brandt, I understand that Hydro has a complete chronology of the transmission line saga, which it can make available to you.

Mr. Haggerty: I want to compliment the member for Sarnia (Mr. Brandt). He raised some issues that I was interested in, particularly the purchase of electricity from Quebec and Manitoba. The minister has indicated that he has taken the bull by the horns and shown some initiative in this area. Perhaps there could be some direction from the committee saying that this is one of the alternative routes to go.

I am concerned, as I am sure the minister is when he wears the two hats, that of Minister of Natural Resources and that of Minister of Energy. In particular, I feel that there is a source of good energy supply on the Niagara River and on the Welland Canal in the Niagara Peninsula. It would be of benefit if we could tap that source of supply right now. It would help to alleviate the high levels of water in Lake Erie that are causing severe problems with shoreline property owners in that area.

11 a.m.

In questioning, Ontario Hydro has indicated that it is not using all of its supply of water from the Niagara River. Even with the proposed new site or by renovating the old site at Niagara Falls, there still would be excess water remaining that it could tap for further generation programs.

I do not know what the water rights are in this particular area or how much water they can draw off the Niagara River. The answer, as I interpreted it, was that there would be more than this future site will have. I think there are 500 megawatts of additional water flow that they cannot use.

Will the minister consider using the Welland Canal for at least five months of the year? Maybe you could increase by about 400 or 500 megawatts at DeCew Falls. Allowing the additional water flow through the Welland Canal would certainly give some relief from the high levels of water on Lake Erie, even if you tapped the water for five months a year, which you could probably do during off-peak periods of the shipping season.

Would the minister consider that? Maybe the direction will have to come through the Ministry of Energy and not Hydro in this area. I am just saying that there is a benefit that could be arrived at both in the generation of electricity and in lowering the levels on Lake Erie.

Hon. Mr. Kerrio: There are two or three questions in there; we will deal with them one at a time. The proposal at Niagara for a third tunnel has to do with maximizing the water that is available to Ontario Hydro by taking it from the intake, which is a mile above the falls, through a tunnel some 11 or 12 miles downstream, which takes the same amount of water and gives it about another 50 feet ahead. We can generate an extra 500 megawatts with the same water that we would normally use under treaty at the Beck and Moses stations.

Hydro is allowed to use all the water over the international agreement. The international agreement says that in the off season--meaning when the tourists are not there--we can reduce the flow to 50,000 cubic feet per second day and night. When the tourists come, we put 100,000 cubic feet over the falls during the day, and when the tourists go to bed, we cut the water back to a flow of 50,000 cubic feet. When the lights go off, the water goes off.

Beyond that, we have a joint agreement with the Americans that above the 50,000-foot flow, we divide it equally; then above the 100,000-foot flow, we divide it equally again. The one major involvement would be that Hydro would take the same water we have now and generate more power with it. The other one is that, except for those unusual times when the flow has increased to nearly 400,000 cubic feet per second, Hydro on both sides can use all the water that nature can provide. When it is not using it for peaking, it puts it into two man-made lakes, one on either side.

I do not think there is any advantage in anything you might do in improving the channelling of the Niagara in order to reduce the lake levels. There would not be any increased use of power, except maybe from time to time when you got close to the 400,000-foot flow.

As far as doing anything at the Welland Canal is concerned, they have had some serious problems. The Welland Canal is getting on in age, and usually they use the winter months to do repairs. I cannot remember any point in my time when they were not repairing the Welland Canal during the off season.

Mr. Ashe: During the season last year.

Hon. Mr. Kerrio: In fact, they kind of scrubbed their way through an emergency last year, where part of the tube and structure all fell away. They really just got it open again this spring. I am not sure there would not have to be a complete redesigning of the canal in order to make use of it for power.

The other thing about it is that you probably would be able to use it only when the canal was not functioning to take ships through. But you have that problem of the maintenance of the canal, and while the ships are going through, there would be very intermittent power. You bring the locks up and you bring them down, and there is no real flow that would be continuous.

It would take a new engineering feat, I would imagine, to develop a canal that could serve both functions. It is not beyond modern engineering to do it, except that we are talking again about tremendous sums of money to use the same water that is available to us at Niagara. I do not know to what degree we can do that.

You are talking about the other ministry, and Hydro tells me that, as far as backing the water up for the flooding is concerned, the top of the control structure at Niagara that goes out from the Canadian side only that raises the level of Grassy Pool to force it into the tunnels to bypass the falls and go down is 12 feet below the water entering at Lake Erie. There is no way this structure can control the water at the Peace Bridge. Many people think it can, but we ran through the numbers and found that this control structure is considerably below the inlet at the Peace Bridge.

If we were going to do anything in the way of alleviating flooding, we would have to channel it. We would then have to build a control structure in the channel so that if you had 10 years of drought, you would be able to control the water by holding it back. Right now we might be trying to get it out, but you will have to face the reality that somewhere down the road you might be looking at holding the water levels up for shipping and for other purposes--municipal treatment plants and all of those things. It is a pretty involved and intricate undertaking.

Mr. Haggerty: There is a control weir at lock 8 in Port Colborne; that is almost at Lake Erie. There is perhaps a two- to three-foot difference between the water level in the Welland Canal and that in Lake Erie. I am looking at a control weir that would permit more flow of water going down through the canal. The canal is a new channel; it has been deepened out to about 30 or 32 feet.

All I am suggesting is that you put a couple more tubes down by DeCew Falls and take that excess water off that area. It will not go through the locks down at Thorold or the other locks in that area, the bypass that goes to Lake Gibson--

Hon. Mr. Kerrio: I am certainly prepared to get a report back from Ontario Hydro examining that alternative.

Mr. Haggerty: If you could take more water off the Welland Canal, it would help over the years to lower the water level on Lake Erie.

Mr. Sargent: After last night I think we are witnessing the dawn of a new era. Implicit in the existence of all nuclear plants is their vulnerability to sabotage, mechanical failure, human error and outright negligence.

I ran across an article some time ago in the Associated Press report in the United States. The Federal Bureau of Investigation is investigating what might be the first case of attempted sabotage of a United States nuclear power plant. An official of the Virginia Electric and Power Co. said:

"Inspectors discovered that a caustic white crystalline substance had been dumped into 62 of the 64 new nonradioactive fuel elements stored for use later. Luckily, the fuel elements were not damaged, but we had to conclude that it was more the result of naiveté of the possible saboteurs than of good management. The company's vice-president said, 'We are told we have the best security system of any nuclear plant in the world.'"

I hope this committee will get the minister to have Hydro immediately review a crash program to beef up security in all nuclear-controlled panel areas. The operators should control their friends, check them out, and also the security around the swimming pool areas, where we have thousands of tons of spent fuel rods.

As you will recall, I did close work with the Schultz affair, where an operator was involved in a situation in which we could have had a meltdown at Douglas Point. I think it is of paramount importance that the public be assured that we have the tightest security in the world.

11:10 a.m.

With regard to the laxity, my feeling is that Atomic Energy of Canada Ltd. and the Atomic Energy Control Board do not know what the hell they are doing and that their support in investigating Hydro has been very lax. I would like you to think seriously about an edict to that effect to all nuclear operations.

Hon. Mr. Kerrio: I would not hesitate to give you a yes immediately. That is a good message to pass on. I think it should be done. I cannot think that we would dare not do it.

Mr. Chairman: We will get on with Mr. MacOdrum. I thank the minister.

Hon. Mr. Kerrio: Thank you very much. I am sorry I have to be on my way. I do feel, Mr. Chairman--and I say this with some experience--that the work that goes on in these committees is very important. Believe me, I felt that some of the most interesting involvements for me in 10 years in government happened in this committee. -

We were blessed, and Mr. Nixon said it. Talk about experience. Some of the best brains in the field of energy in the world have sat around these tables. It is a good experience, and I am pleased that you are going to give me the kind of direction that will be helpful to the ministry. Thank you, Mr. Chairman.

Mr. Chairman: I wonder whether Mr. Lundeen and Mr. Johnson might make themselves available later on for some further questions.

Interjection.

Mr. Chairman: Fine. Thank you very much.

Mr. MacOdrum: Mr. Johnson explained the legal framework under which both Ontario Hydro and the Ministry of Energy operate in relation to electrical matters in the province. Mr. Lundeen took us through the informal processes. I would like touch upon the ministry's outlook for how the planning process is evolving.

As we have heard, primary responsibility for planning Ontario's electricity system rests with Ontario Hydro. The corporation's planning process has involved extensive consultation with the public to ensure that public concerns and interests are addressed and with the government to ensure that planning activities are consistent with government energy policy.

The government considers that municipal and private utilities, and the private sector and the public, should play an increasingly important role in planning Ontario's electricity system because today's supply and demand investment decisions will directly affect their interests. The involvement of all of these players will ensure that the people of Ontario continue to receive a safe and reliable supply of electricity at reasonable cost.

As members of the committee know, Ontario Hydro has under way its comprehensive review of demand and supply options. The result of this study will be a development strategy for Ontario's electricity system in the 1990s and beyond.

Progress to date has been described by Ontario Hydro, and I would like to take the opportunity to describe the government's role in the planning process and how the Ministry of Energy will endeavour to ensure that Ontario Hydro's planning is in harmony with the government's energy policies.

The process is that the Ministry of Energy developed policy on matters relating to the planning of the electricity supply system. They are required to develop statements of government policy and then Ontario Hydro is expected to undertake its planning activities in harmony with government policy. I am sure the members will understand from what Mr. Johnson indicated today that it is very much a two-step process, that the government considers policy activities and policy statements and then the Ontario Hydro board, and management under direction from the Ontario Hydro board, has the authority to determine whether its actions are in harmony with government policy. Two sets of judgements are required.

The ministry's recent activities relating to the development of electrical system planning policy include the preparation of the forecast of electricity demand to the year 2000, which was described in the document The Shape of Ontario's Energy Demand, which we provided to the committee in the fall hearings with its companion paper on electricity supply options, Fuelling Ontario's Future. These documents describe the energy planning environment through to the year 2000.

As the members of the committee will appreciate, the planning process for the long-term future of Ontario's electricity system must recognize the wide variety of economic, technical and social factors comprising the planning environment. One of the factors in the planning environment that will have a significant impact on the electricity development strategy is the wide range of projected economic growth scenarios. There is also great uncertainty regarding prices of competing energy sources, particularly oil and natural gas. Together these factors will result in great uncertainty in the future growth of electricity demand.

Another factor that influences planning is the wide application of electricity due to its versatility and controllability. The ministry considers electricity will be in the forefront of industrial expansion and that total electricity needs could grow to be 40 per cent greater by the year 2000.

The planning environment is also influenced by provincial government objectives for Ontario's bulk electricity supply system. Such provincial objectives could be (1) to reduce wasteful use of electricity, improve efficiency of existing uses and meet new requirements for electricity in the most cost-effective way; (2) to ensure maximum economic use of Ontario's existing bulk electricity supply system to defer the need for new supplies; (3) to make maximum economic use of Ontario's renewable energy resources and

small-scale potential for the generation of electricity where new supplies are required; (4) to encourage the participation of the private sector in providing for an economic and efficient supply of electricity; (5) to ensure Ontario's electricity consumers are provided with a secure supply of electricity at the best feasible cost over the long term; and (6) to protect the environment from potentially adverse effects arising from Ontario's electricity generation and transmission.

In the light of the planning environment and the government's objectives relating to the electricity system, the ministry is conducting a preliminary review of the demand and supply options for meeting our future electricity needs. The intent of this review is to describe the Ontario government's policies related to Ontario's electricity demand and supply strategy and to develop guidelines to assist Ontario Hydro in ensuring that its planning is consistent with government policy. It is expected that this will form the basis of a document to be released in the coming weeks.

Our review is focused on a number of important issues. For example, how can maximum benefit be obtained from existing facilities and from Ontario's small-scale generation potential to find the most economic means of deferring the need for major new commitments? The review also recognizes that under current load growth and supply development assumptions concerning small generation, conservation and load management, Ontario Hydro may need to evaluate additional supply measures. This evaluation will include consideration of additional fossil-fired or nuclear capacity as well as major purchases from Canadian neighbours and development of our remaining hydroelectric capacity.

11:20 a.m.

The guidelines being developed are designed to ensure that Ontario will continue to benefit from a secure supply of electricity at the lowest feasible cost over the long term. The guidelines focus on a number of initiatives that will improve the utilization of existing facilities to defer the need for new capacity.

These demand-side initiatives include conservation and load-management programs, which will reduce wasteful uses, reduce the level of peak demand and improve the efficiency of use in the existing system. Many such initiatives are attractive because they offer lower, more easily estimated costs and can be implemented in shorter lead times than large-scale generation alternatives.

Several supply-side options also exist that have short lead times and could lead to better use of existing facilities. The conversion of oil- or coal-fired plants to other methods of generation such as energy from waste, fluidized bed combustion or coal gasification provide examples of the kind of options that could be reviewed.

It is expected that Ontario Hydro will make maximum use of our renewable resources through the development of large-scale hydroelectric sites where they are economic and environmentally acceptable and by encouraging the development of new and small-scale generation by the private sector. Private sector involvement could be encouraged by offering purchase rates that reflect the true value of that power to Ontario Hydro.

Another supply option that will defer the need for new facilities is the purchase of electricity from neighbouring utilities. Ontario Hydro will be encouraged to consider joint developments with Quebec or Manitoba of

hydroelectric generating potential in the James Bay basin, the Nelson River or elsewhere. Development of these options will provide diversification of supply technologies and allow Ontario Hydro to maintain the flexibility to accommodate a range of future electricity needs.

Decisions relating to significant additions to generating capacity, however, cannot be deferred indefinitely. Long lead times for the planning, design, approval and construction of new stations may require that commitments be made in the next several years to add new base-load plant to Ontario Hydro's supply system.

I have described some of the work in developing the policy framework for Ontario Hydro's demand and supply options study. As the work progresses, the policy framework will be further refined through further discussion. For example, the work of this select committee is an important step in the planning process. In addition, the Ministry of Energy will be involved in a number of related activities to assist our policy development.

I now ask Paul Shervill to describe some of the work we have under way that relates directly to the supply and demand study.

Mr. Shervill: As Mr. MacOdrum has just mentioned, the primary responsibility for planning the electricity supply system rests with Ontario Hydro, but that does not mean the ministry is not active as well. In fact, we are. We are currently involved in a number of work activities that will form the basis of the government's policy advice on options for shaping the electricity system in the future. Our work is not intended to duplicate the full range of activities that Ontario Hydro has ongoing in its demand and supply options study, but rather it is intended to highlight those areas where a government perspective can be particularly useful in helping Ontario Hydro in its consideration of the various options.

One of these work areas relates to cogeneration, in which I know this committee has an interest and which is the simultaneous production of electricity and thermal energy from a single energy source. At present, cogeneration facilities in Ontario supply about 500 megawatts of electricity to industry and, as parallel generation, to the electricity grid. Work that the ministry currently has under way is intended to identify the future economic potential for cogeneration in Ontario and will identify some of the barriers to development and alternative means of reducing the effects of these barriers.

We will also be examining the economic impacts on Ontario of Ontario Hydro entering into major electricity purchases from Quebec or Manitoba to supply additional power requirements in the period beyond 1995 as an alternative to building generating capacity in Ontario. Some of the impacts we will examine are the impacts on employment, real gross domestic product, labour income and overall output.

Innovative arrangements that would see Ontario Hydro participate as a joint developer or an equity partner of new hydroelectric potential in Quebec or Manitoba will also be examined in this study.

Another area coming under study is the likely development of new coal-fired technologies suitable for use for electric power generation. We will be assessing the likelihood of a variety of new technologies being available for commercial operation in Ontario at different points in the future, and the estimated contribution these technologies may help us make in reducing acid gas emissions.

Linked to this work will be an assessment of the relationship between the use of this new coal-fired generation, the continued use of existing plants and Ontario's new acid gas regulations. This work is very important because, as we know, regardless of the means of producing electricity, Ontario Hydro will plan to meet acid gas emission limits.

On the demand side, the ministry is preparing an assessment of the impact on electrical utilities of implementing conservation initiatives. These measures often can be implemented in shorter lead times than large-scale generation alternatives. The purpose of the ministry assessment will be to quantify the impact of various conservation actions in terms of the overall costs to the electricity system and on electricity rates.

Taken together, this and other work will form the basis for a ministry study, assessment and review process. It will ensure that issues are identified and resolved in a manner that satisfies the government's policy objectives and public needs. It allows the evaluation and refinement of advice on the relative merits of the options and will form the basis of the government's guidance to Ontario Hydro to assist the corporation in carrying out its planning responsibilities in harmony with government policy.

The demand and supply options study being developed by Ontario Hydro should allow for the cost-effective accommodation of a wide range of possible demand levels and electrical system requirements. In this context, the choice among the options will be made by striking a balance among the following objectives: the need for utility financial flexibility; long-run economics; electrical energy supply security; consumer cost of electricity; public acceptability of the options; and provincial economic impact.

Once this comprehensive evaluation of the options has been completed by Ontario Hydro, it will be the subject of a review by the government. The work I have just described, along with an appropriate public participation program, will form the basis of this government review.

Mr. Chairman: Do you want to do the next part?

Mr. MacOdrum: If you have any questions for us, we might respond to them and then the deputy minister and Mr. Dominy will deal with the next part of the presentation.

Mr. Ashe: I have two questions and they interlock. After listening fairly carefully to Mr. Shervill's presentation a moment ago, I am still a little unclear as to the ministry's association with the DSOS. Is the study you were doing independent of the Hydro demand and supply options study or is it being worked on jointly with Ontario Hydro? I do not quite understand it.

Mr. Shervill: The work we are doing is independent of Ontario Hydro's work in the sense that it is the ministry that is conducting it, but that is not to say we will not discuss matters pertinent to the study with Ontario Hydro. Clearly, we are.

Mr. Ashe: The ministry is doing a study that is somewhat similar but parallel to Ontario Hydro's study. Is that basically correct?

11:30 a.m.

Mr. MacOdrum: We have described today basically two areas of activity, the first being the preparation of some general policy guidelines by

the ministry for Ontario Hydro with respect to its supply and demand study. That work is being done by the government independently from Ontario Hydro, but with discussion and consultation with Ontario Hydro. That is the first area of work.

The second area of ministry activities is a number of studies that look at what we consider to be issues arising in the supply and demand study that have a major public policy impact. For example, Mr. Shervill described the consideration of purchases from Manitoba and Quebec. We are looking at that option in the context of public desirability from a provincial point of view, not just from the point of view of advantage to Ontario Hydro. These studies are going along, as you suggest, in parallel. They are being undertaken independently, either by the ministry or by consultants for the ministry, and are being done in close consultation with Ontario Hydro.

Mr. Ashe: I will follow up on your last point because it leads right into what was going to be my next question on the split between how many things are being done by consultants and how many by Ministry of Energy staff. So I will not have to ask twice, what is the current complement in the Ministry of Energy's electricity section?

Mr. MacOdrum: I will ask Mr. Shervill to take you through the makeup of the electricity section. The electricity section is the focus of the ministry's examination of issues relating to Ontario Hydro, but several others in the ministry are involved in work relating to Ontario Hydro. For example, current matters--over the past few days--have related to Ontario Hydro rates. George Dominy, the manager of finance, rates and utilization, who will be the next witness, is very knowledgeable on those matters. You have heard from our director of legal services who becomes very involved in matters of a legal nature relating to Ontario Hydro. The forecast I touched on was prepared by our economics and forecasts section. A wide range of people within the ministry touches on electricity matters. Mr. Shervill can describe the makeup of the electricity section in a little more detail since he is the manager for that section.

Mr. Ashe: I would appreciate that.

Mr. Shervill: There are 13 full-time complement positions in the electricity section, 10 of which are professional people.

Mr. Ashe: Are they all full at the moment?

Mr. Shervill: Yes, they are. For the purpose of these studies we are also retaining a number of consultants to assist us, but just to assist us, in the sense that they will help us with the gathering of data and will feed that information into the ministry. Each of these studies is managed by an individual within the ministry.

Mr. Ashe: Is that right across the board?

Mr. Shervill: Yes.

Mr. Ashe: I am glad to hear that. You are using the consultants to gather and feed into a committee or a person co-ordinating a particular part or function of a study?

Mr. Shervill: That is right.

Mr. Ashe: Has the ministry already received the annual letter from Ontario Hydro vis-à-vis the suggested rates and the referral to the Ontario Energy Board? Has that happened yet? I know it has not gone to the board according to Mr. Macaulay, but he is expecting it momentarily.

Mr. MacOdrum: The answer to both of your questions is yes.

Mr. Ashe: Mr. MacOdrum, in your view what are the key issues being dealt with right now in the LSOS by Ontario Hydro in phase 2?

I see there is a press release out today. It is 4.9; sounds like a vaguely familiar figure from last year's directive from the Ontario Energy Board.

Mr. MacOdrum: The work Ontario Hydro is undertaking and the issues it is seized with--that is, the shape of the electricity system beyond 1992--is a very major undertaking with a myriad of subissues.

One of the most challenging and interesting issues being tackled by Ontario Hydro--I misspoke myself earlier when I described it as its supply-demand study, which is the earlier and conventional terminology; Hydro has properly entitled it as a demand-supply study, which indicates new emphasis being placed on demand-side options--is the important consideration of demand options: the integration of the analysis of demand options with supply options; the development of estimates of potential, both technical and economic potential; the assignment of costs and their analysis so they can be appropriately compared and ranked both with respect to how they can be implemented and how to deal with the uncertainty.

Clearly, when you get into demand-side options, a large number of participants are involved in the implementation of demand options--every citizen of the province uses electricity--and therefore the degree of uncertainty attendant on those kinds of options is a whole order of magnitude different from the construction of a generating station and including it in the grid.

How you compare them and what their values are is one of the most important areas of new ground that Ontario Hydro has embarked upon and that the committee has joined by including the demand-supply options study as a major part of its inquiries. That is one of the most interesting and important issues before the committee.

Mr. Ashe: You have focused on the main issues, and obviously the ministry is in concert with Ontario Hydro in that regard.

I was pleased to see that one of the studies being done by the ministry relates to the pluses and minuses of the purchase option, particularly from Manitoba and Quebec. I have a bit of a scary feeling that Ontario Hydro is going to be stampeded by some groups, perhaps some people right within this committee, who feel the full answer for the future is purchases, on the assumption that those provinces are going to have all kinds of cheap power they are going to sell to Ontario cheaply.

First of all, the two assumptions are a fallacy. The other part of it you have referred to, which is very important, is the pluses and minuses of the impacts within Ontario on our own economy, security, jobs, etc. We both know James Bay power is more economical than Darlington power--let us not confuse it--but it is not cheap power per se, and then there is the cost of

getting it here. If they can sell it to the northeastern United States at so many cents a kilowatt-hour, they are not going to sell it to us at 60 per cent of that rate just because we are friendly neighbours on the same side of the border.

I am glad to hear, and I want to be assured, that those things are being looked at on an ongoing basis because while the purchase option route may very well be part of the answer--I am not belittling its importance--I do not think it should be presumed that it is the panacea for future needs in Ontario.

Mr. Chairman: Thank you, Mr. Ashe.

Mr. Ashe: If a nod can go on the record, I did get an nod.

Mr. Charlton: Which nod was it?

Mr. Ashe: It was an up and down nod.

Mr. MacOdrum: Clearly, the matter is under review. There are many matters to balance in the consideration of purchases; price is one. The attitude of committees such as this and of the public generally to the idea of purchases, as distinct from what might be called made-at-home options, will be an important consideration that has to be taken into account when these kinds of options are considered.

11:40 a.m.

Mr. Chairman: I have one supplementary to a question posed by Mr. Ashe. Mr. Shervill, on page 28 you list the objectives. What do you mean by "financial flexibility"?

Mr. Shervill: The important point we were trying to make in terms of the need for utility financial flexibility was to keep open as wide a variety of options as possible on both the demand and supply sides that the utility could take advantage of and in that way protect itself against unforeseen occurrences on a variety of fronts.

Mr. Chairman: Is there any priority ranking of those objectives?

Mr. Shervill: No. They are not listed in any particular priority.

Mr. Chairman: If you are going through this exercise to develop policy objectives for Hydro, how can you do it without giving them some priority?

Mr. Shervill: They are all very important. As we go through the exercise of conducting these studies and bringing in and assimilating that information, it may become apparent to us that some are more important than others. However, at our current stage of work, it is very preliminary. We would like the benefit of the results of some of that work before we make that determination.

Mr. Charlton: You mentioned a number of the studies being undertaken by the ministry in relation to our electric power planning future in this province. Can you tell us what stage those studies are at, and can you give us some indication of whether there are any data or findings from any of those studies that the committee might get access to over the next few weeks which would help us in our deliberations?

Mr. Shervill: As I was saying to the chairman, many of them are very much in their preliminary stages. We are in the process everywhere from the preparation of terms of reference to just about the letting of contracts.

Mr. Charlton: None of them is very far under way at all?

Mr. Shervill: None of them is very far advanced at this point.

Mr. Haggerty: I am concerned about the wrong economics dealing with the generation program of Ontario Hydro. In particular, Mr. Ashe talked about the purchases from Manitoba and Quebec. While I share some of his concerns, my personal view at present is that it is one of the alternatives we should be looking at.

He was concerned about the jobs that might be lost in Ontario if we were to purchase hydro from Quebec or Manitoba, for example. When you look at the construction of the nuclear plant at Darlington, one of the major costs there is the purchase of the electrical generators themselves. I do not think there was any concern about jobs in Ontario when they were purchased. I understand they were manufactured from Switzerland. We have General Electric and Westinghouse, which could have been building these generators in Ontario. As the then Minister of Energy, he should have been concerned about it at that time. I do not think there would be much loss of jobs if Hydro were to purchase electricity from Manitoba or Quebec.

Mr. Cureatz: Ray, come out to Durham East and tell the 8,000 people working there that you are going to shut down the plant because the electric generators were bought in Switzerland.

Mr. Ashe: At two thirds the cost. -

Mr. Chairman: Order.

Mr. Cureatz: Do that just before the election, when your Liberal candidate is running around. We would appreciate it.

Mr. Haggerty: Come on, George, let us not get--

Mr. Chairman: Mr. Haggerty, I am sure, has a question.

Mr. Haggerty: The question is, whose mandate is it? Is it Ontario Hydro's mandate to seek contracts for offshore purchases from Manitoba and Quebec, or is it the mandate of the Ministry of Energy? Whose mandate is it in this area? This morning we have heard questions about the legality of the responsibility of Ontario Hydro and the minister. Whose mandate is this?

Mr. MacOdrum: With respect to purchases for an approved project, responsibility for that is Ontario Hydro's. They have certain guidelines with respect to the source of the goods, and they go through a very detailed procedure in terms of obtaining the best price for the kind of technology they need.

The matter of managing the purchase requirements of Ontario Hydro is Ontario Hydro's; it is very much part of the management of the business. The facilities have to be approved by the government, but once that approval is obtained, within that approval, the management of the purchases is the responsibility of the management and the directors of Ontario Hydro.

Mr. Haggerty: This is for purchases from Manitoba or Quebec?

Mr. MacOdrum: I was talking about the purchases of equipment.

Mr. Haggerty: What I mean is, whose mandate is it if we make a recommendation saying that one of the areas we should be looking at is the purchase of electricity from Quebec or Manitoba to strengthen the northeastern and northwestern grids? We are looking at it; if we have to wait for 30 years to get a transmission line up there from Darlington, which is about 1,000 miles, it might be more economical if it went the other way. Whose mandate is this? Who would be initiating the agreement? Would it be Hydro or the Ministry of Energy?

Mr. MacOdrum: The mandate for that is joint, because in the end, once a contract has been entered into, Ontario Hydro would be required to obtain government concurrence in the contract.

Mr. Haggerty: But who would initiate it? If we make the recommendation here, it does not mean that either Hydro or the Ministry of Energy would initiate it. How do we bypass one and say this is what we want to see done?

Mr. MacOdrum: I think your recommendations on that subject should be directed towards both the government and the corporation. The corporation would propose but the government would dispose of or approve the proposal with respect to power purchases.

Mr. Charlton: A supplementary to that question: You are saying it is a joint responsibility. What direct involvement does the ministry have in the actual discussions with Manitoba and Quebec? You have said that if Hydro goes off and negotiates a contract, it is still going to be subject to government approval; but it would be awfully embarrassing if Ontario Hydro were to go out and negotiate contracts and then have the government, the ministry and/or the cabinet turn them down.

Mr. MacOdrum: I agree with you on that. The type of thing we are undertaking as a ministry is that we have discussions with our neighbouring governments on a government-to-government basis. We recently have had discussions at the staff level with the government of Quebec, and we will be having discussions in the next little while with the government of Manitoba on these subjects.

We also have regular consultations with Ontario Hydro on its discussions with Hydro-Québec and Manitoba Hydro. However, we do not generally have direct discussions with the utilities. Generally, the business relating to a contract is between the two utilities.

Mr. Charlton: Do you not think it would be wise, though, if at least you had an adviser or a consultant directly involved in the negotiations?

Mr. MacOdrum: We are kept very well informed and do make representations from Hydro from time to time on the subject matter of those discussions, but certainly that is a suggestion that could be looked into.

Mr. Haggerty: What part does the ministry have in relation to the other way around, when Hydro says it is going to export a certain amount of power through interconnections? Do they have to obtain authority from the Ministry of Energy or the cabinet?

Mr. MacOdrum: To enter into an agreement, they do; they also have to obtain approval from the National Energy Board.

Mr. Haggerty: Is that the only one, or does it also take the government of the province or the Ministry of Energy? What role does the Ministry of Energy play in this?

Mr. MacOdrum: My understanding is that when they come forward with their agreements for additional exports or for renewal of an export contract, they seek the approval of the government. They also, as I mentioned, require the approval of the National Energy Board.

11:50 a.m.

Mr. Haggerty: The other area you are talking about on page 29 is energy conservation, and you talk about appliances and small or efficient motors. What does your ministry do to check out the appliances that are on the market today?

If you were to go downtown to look at the appliances in the big department stores, you would see a "Conserve Energy" label on them; I think that is what they have written on them. If you were to buy an automatic washing machine, you could buy an offshore one from Japan that is rated at 79 kilowatt-hours per month based on an average of four in a family. If you bought one made one of the Canadian firms, you are looking at a range of 79 to 125 kilowatt-hours. If you buy a dryer made in Japan, it is rated at 39 kilowatt-hours per month per family. If you buy the Canadian make, you are looking at anywhere from 75 to 90.

Who checks this out so you know whether you are getting what they are trying to promote in energy conservation in this area? I tried to find this out. The salesman said the appliances made in Japan are a little bit smaller and that is why they conserve more energy. If you get the bigger Canadian ones--we go in for the Cadillacs--you are consuming more energy. Who knows what the cost efficiency is to the consumer, the end user of this?

Mr. MacOdrum: I think what you are referring to is what is known as the Energuide program, which was brought in by the federal Department of Consumer and Corporate Affairs in co-operation with the provinces and the various provincial electrical utilities and electrical inspection agencies. The federal government has had some studies done of that program, as I am sure you are aware. The recommendations of those studies conflict, but there have been some reports about whether the government of Canada may discontinue or alter that program. Ontario Hydro and the government have made representations to the federal government about how valuable we feel that program is.

As to how appliances are measured, this is done by testing them at laboratories, such as the Ontario Hydro laboratories on Kipling Avenue and other similar laboratories in Canada, to ensure that they do comply with the standards. I am not an expert in this area, but my understanding is that one of the concerns people have had that is causing the review of the program is not that the appliances are not tested sufficiently against the standards but the cost of the testing; that is a concern to the manufacturers. The deputy minister and Mr. Dominy are going to speak on our conservation policies in that area. They may be able to add to what I have just said.

Mr. Haggerty: Witnesses have appeared before the committee previously who have suggested that any offshore appliances, such as those from

Japan, are energy-efficient. The salesman tells me they rate the machines based on the load in pounds. The Canadian-made unit takes a load of 12 pounds or something like that, while the Japanese make can handle about seven pounds. If you have a large amount of laundry, you will be running that machine twice as long as you would the other because it does not have the capacity.

Is that misleading? How do they make that judgement call? We have had witnesses come in and say that if you buy an offshore product, you are going to buy an energy-efficient appliance that is going to save you the end use in the long run and reduce your energy bill. You said there are some conflicting viewpoints on this.

Mr. MacOdrum: On the value of Energuide program. In so far as salesmen suggesting to you that offshore appliances are necessarily more efficient than domestically made ones--

Mr. Haggerty: No, the salesman did not tell me that. He said you have to go by the weight and capacity.

Mr. Chairman: May I interrupt here? I am not sure quite how we got into this territory.

Mr. Haggerty: Conservation, on pages 29 and 30.

Mr. Chairman: It is 11:55 a.m. and we have a 10-page presentation on conservation about to come.

Mr. Haggerty: It was in what he was reading and that is what I went by. I want some clarification on this.

Mr. Chairman: We have not had the presentation yet.

Mr. Haggerty: We will go out and buy an appliance and we will put in on test then. How would that be?

Mr. Chairman: Have you completed?

Mr. Haggerty: Yes.

Mr. Shymko: In the introduction of the legal definition of Ontario Hydro it is said that Hydro is a corporation without shareholders. My understanding is that in the perception of Hydro there are holders and they are the public. I would like to address a question on what you conclude at the end of your presentation, that one of the six objectives listed is public acceptability of the options, namely, acceptability by those whom I perceive to be the shareholders of Hydro. You conclude that appropriate public participation programs will form the basis of your governmental review.

I have not heard any reference, except in a general reference to public input, any detail of what this improvement of public input would be or any reference to some of the suggestions that were made to this committee in our earlier deliberations. I would like you to answer some of the questions I have in this area because I believe that the level of public acceptability you stress is relative to the level of public input. The more you have and the more effective that public input, the more acceptable will these options be to the public.

There were some suggestions and I will refer to five made to this

committee, the most recent by the chairman of the Ontario Energy Board. He admitted, if I recall correctly, that there were some limitations and inadequacies in the public advocacy aspect of the hearings that the Ontario Energy Board is mandated to hold. He referred to the fact that they do not have any power of funding. These public groups are limited by expertise and time.

There is a problem with the quality of understanding that is expected from the public, which is so important in your conclusions, and yet they are paralyzed by the inadequacies, to which even the chairman of the Ontario Energy Board admits. Do you share the concern that there should perhaps be an amendment to section 37 of the Ontario Energy Board Act or at least something to provide that assistance to the public, the real shareholders of Hydro, at these hearings so they can have a direct and much more effective input?

Mr. MacOdrum: The question of public funding, of participation in administrative hearings throughout the province is one that the government has continually under review, for example, in cases before the Environmental Assessment Board and other tribunals. The use of public funding for participation has become more widespread and can give a new dimension to the success of the public hearings.

12 noon

Mr. Shymko: To the planning aspect, which is fundamental.

I will refer to some suggestions made in briefs to this committee. For example, the Ontario Federation of Labour suggested two things: that an energy development control board be established to oversee planning of the overall energy needs and to ensure public and workers' safety. It should report directly to the Legislature; and that the provincial regulatory bodies should have labour representation, for example, based on consultation with the Ontario Federation of Labour and, at the federal level, the Canadian Labour Congress. The industry council on conservation and renewable energy suggested that this select committee or the Ontario Energy Board should hold hearings after Ontario Hydro had developed a proposed plan of action, and that both this select committee and the Ontario Energy Board should investigate the various financing mechanisms and pricing considerations. Very interesting proposals.

Another suggestion, by the Taskforce on Churches and Corporate Responsibility, is related to the area of nuclear waste disposal. They are concerned that the ministry is either unable or unwilling to find meaningful ways to involve the nonexpert public in discussions of new technology as it is being developed. Would you comment on some of these recommendations made to this committee?

Mr. MacOdrum: On the last point, with respect to the Taskforce on Churches and Corporate Responsibility on the nuclear issues, I testified before their hearings which were held about a year ago. At that time there was extensive discussion of the process that has been developed. The process, with respect to examining the question of nuclear fuel waste, is in two steps. The first stage, which the governments of Canada and Ontario, Atomic Energy of Canada Ltd. and Ontario Hydro are developing, is the concept for permanent storage and it is anticipated by the participants that there would be extensive public discussion and input into discussions of those concepts and the technologies that are involved, prior to the second stage which would be

the selection of any particular site. With regard to that issue it is intended there will be extensive public input.

Mr. Shynko: I am glad to hear this. With reference to appropriate public participation, I had not heard of any examples in your presentation, of any change or anything innovative outside of what currently exists. The present public input or public participation process is not adequate, and I am glad to hear there is that change in the nuclear waste energy disposal. I and I am sure other members of the committee would have appreciated hearing some more detailed exposé of an expansion of that input which is fundamentally important to a corporation which by legal definition is without shareholders, but which in our perception the public is a major component of those processes, especially of planning.

Mr. MacOdrum: Mr. Shynko, you will recall that in the minister's comments to the committee, he indicated that this committee is a very important part of the public input and consideration of the demand-supply options that Ontario Hydro has prepared. The airing of that study, being undertaken over the past several weeks and currently, is something that we at the ministry consider to be very important and are looking forward to the findings of the committee with great interest

Mr. McGuigan: You mentioned this morning the problem of delivering hydro because of the reluctance of land owners to have hydro towers on their land. I was a member of the executive of the Ontario Federation of Agriculture for a number of years. This was a very heady issue. The worst offenders at the time were the pipeline people. They were more of offenders than Ontario Hydro, although they all were linked together. The pipeline people would come across a farmer's field without any regard to his animals, the crops that he had in his field or the tile in the ground. The reply to the farmer was always: "Well, see our lawyer. Go ahead fight it in the court. In the meantime, we are barrelling right across here." It was an era when engineers, executives of power companies and so on felt they had the right to go across these farms. That has since been changed. One of the landmark decisions involved a fellow named Peter Newington who sued TransCanada Pipelines. Some decisions were made in his favour.

There has been a change in attitudes. It was the attitudes the farmers were fighting. You have to look upon us land owners far differently than you have in the past. It seems to me we have made that change. Are we looking realistically at compensating farmers for putting hydro towers on their land? I remember a few years ago a neighbour of mine was forced to take hydro towers at a one-time payment of \$75. He made an offer to Hydro, "I will give you \$75 if you do not put the tower on my farm." When looking at the fantastic costs that have accrued with 20 years of hearings and the use of more costly, alternative forms of hydro, have we looked at a way of settling these matters? Some land owners would lose some of their opposition if a realistic payment were made. Not so much a one-time, single payment but an annual rental fee might solve some of these problems.

Mr. MacOdrum: As you know, the matter of compensation is always an interesting one related to any land-use decision in terms of rights of way, whether it is a pipeline or an electrical transmission line. The situation has improved very much in recent years, as you note. A large part of that is through the excellent work that has been done between utilities such as Ontario Hydro and the Ontario Federation of Agriculture in their discussions in developing new approaches for compensation.

Ultimately, if the land owner is not satisfied with the arrangements for compensation, there are remedies through the Land Compensation Board and things such as that. In most cases, neither the land owner nor the utility wants to take it to that point. The developments that have taken place as a result of discussion between the federation of agriculture and the utilities, including Ontario Hydro, have been a step in the right direction.

Mr. McGuigan: Where does that leave us on the problem of getting power out of the Bruce?

12:10 p.m.

Mr. MacOdrum: The lines from the Bruce, as you know, are the subject of hearings currently before the joint board. Those hearings are taking somewhat longer than everyone's estimates at the outset. I hope they conclude after a full hearing of the issue but in a most expeditious fashion.

Mr. McGuigan: It would still be my hope that if people who wanted corridors, for whatever purpose, made more realistic offers in the first place, we would not have some of these delays. I guess Ontario Hydro would make these determinations rather than the Ministry of Energy, from what you have told us about the structure.

Mr. MacOdrum: Yes. The government generally, not just through the Ministry of Energy but through the Ministry of Agriculture and Food and others, can make suggestions or directions to Ontario Hydro. As Mr. Johnson explained when he described the current allocation of responsibilities, the ultimate decision is with Ontario Hydro in terms of the offer. If there cannot be any settlement, then it goes to an administrative tribunal called the Land Compensation Board.

Mr. Shervill: In fact, the joint board which is hearing the southwest transmission corridor question has, as one of the decisions it must make under the consolidated statute, to consider the matters under the Expropriations Act. It takes upon itself the responsibility of determining whether the land required is necessary. After that, it is referred under the appropriate legislation to a hearing officer to determine what appropriate compensation should be.

Mr. McGuigan: It is my submission that, since we have that change in attitude, the time is ripe for better offers to be made in the first place. Perhaps we then would not have to go through these very lengthy hearings.

Mr. MacOdrum: I have heard others in the agricultural community indicate that the major area of concern is compensation. The other factor that the board of directors has to weigh with compensation is the cost of that compensation to electricity customers.

Mr. McGuigan: It is costing them a pile of money right now for not having the corridor.

Mr. Haggerty: I have an article here from the Toronto Star, Thursday, May 31, 1984, about sudden blackouts. It says: "Power failures possible until 1988, Hydro says."

"Ontario Hydro is warning customers they could face power blackouts without notice over the next four years. Tom Rusnov, a senior Hydro engineer, said the utility has installed a \$30-million system that will instantly cut

power to as many as 29 suburban areas"--let us hope it is not Whitby or Barrie or someplace such as those--"to prevent power drains that could damage parts of the North American grid.

"As many as two million people, including those living in some areas of Mississauga and Markham, will be affected.

"But heavily populated areas, like downtown Toronto, won't have such blackouts."

If they did not involve the \$30 million to secure the supply into Toronto, 2.5 million people here would be up in arms, would they not? It would not take them long to put those transmission lines in.

You have to draw the line someplace. This issue of transmission lines through Essa from the Bruce has been debated since 1975. How long is it going to continue this way? The minister says it is going to cost us \$400 million. Looking at this thing, somewhere along the line we are going to have to come in with legislation that will put a time limit on the hearings. A lot of people out there will be screaming, but if they did not have power to their cottages and so on, they would take a second look in the direction they are screaming. I live in the Niagara Peninsula and all you see is a corridor of transmission lines--

Mr. Chairman: I think I heard the question.

Mr. Haggerty: You did? --coming out of Niagara. You never heard the people there complain because the power went to Toronto, Kitchener, London and places such as those. There has to be some common sense to this. We cannot put this off any longer. A decision is going to have to be made. A sum of \$30 million is going to secure Toronto with electricity. There may be 29 other municipalities out there that are going to be screaming for it.

Mr. MacOdrum: I believe the load-management and generation-rejection scheme to which you refer is put in place to minimize the impact of the locked-in power at Bruce for all the province, not just for Toronto.

Mr. Haggerty: It could be going up north where it is needed to secure the electricity supply north of Sault Ste. Marie and areas such as that. It is a quick way of getting it up there. Somewhere along the line you are going to have to bring in legislation. There is a time limit on this.

Mr. Chairman: Thank you very much, Mr. MacOdrum and Mr. Shervill.
Mr. Allan.

Mr. Allan: I have brought George Dominy as our consumer activist, utility plant specialist. He is going to answer about all that Energuide crap at the end. There is a real debate, Mr. Haggerty. We happen to think it is a very useful consumer service and so does Hydro. The government of Canada has--perhaps you want to do four small washes instead of one big one. I think they rate these things on energy efficiency against their rated capacity. If consumers buy small appliances and want it all the time, they are stupid.

Mr. Haggerty: Mr. Allan, let us not use the word "stupid." If I were to buy an appliance, I would try to find the best way to go. You are looking at \$1,200 or \$1,400 for these units.

Mr. Allan: If you have seven kids, you know how many washes you are

going to do. I do not know what it comes in; pounds, litres or whatever these things come in. You have a fair idea how long you are going to run the machine. As your first consideration, given price and everything else, I think you would buy a machine that was somewhat close to the optimal capacity for your personal circumstances. If some salesman talks you into some little offshore miniature version that is highly energy-efficient, perhaps you are very small or only have half a pound of washing or something. It seems to me the choice is for your own circumstances. We would like to see the Energuide with those numbers on every appliance in Ontario.

Mr. Haggerty: The numbers do not tell you anything. The first impression I got was that I was getting a better deal if I bought the foreign make. One said 39 and the other said 95 for doing the same drying. It is misleading. That is where the problem is. We had witnesses before the committee saying that you can save by buying appliances offshore. I am not convinced of that.

Mr. Allan: Neither am I. We will get something and table it before this week is out--

Mr. Haggerty: Let us get something definite.

Mr. Allan: --on all the common appliances, what the Energuide thing says, what it means and what a typical housewife, home owner or whoever might consider looking at for her or his circumstances. If that is what you want, Mr. Dominy has an army of people who can do that kind of stuff.

Mr. Chairman: Perhaps I can interject and say that we would like to adjourn for lunch in 10 to 15 minutes. Perhaps you can take us through this presentation.

Mr. Allan: I do not think the way to go is through the presentation, since you have it. We could get to a couple of core points we want to make.

Mr. Chairman: All right.

Mr. Allan: As a committee, your deliberations tend to be focused on Ontario Hydro and electricity. However, there is a broader subject, the energy markets and energy conservation. I suspect that in the supply-demand system expansion planning, the most important role of the ministry is to look way beyond electricity, to look at what is happening and what we should be looking for in the province to see where electricity fits. It is unnatural to expect Hydro and Hydro planners to jump out of their skins and look at that broader range of considerations. Fundamentally, they are dealing with their competitor's product.

12:20 p.m.

As a ministry, we tend to look at the bigger picture. We do not particularly agree, although our forecasts have come a lot closer, that electricity demand is going to grow as fast as some people think it is. There are pressures working both ways. We take a strong position that there is a lot of scope for conservation. Energy conservation, in its broadest sense, is the government's or the ministry's responsibility. Wise use of electricity is Hydro's responsibility. We would go further and say they should narrow it down to where they can have some impact. We put in this document motors, meters, lighting and commercial-industrial applications. It seems to us that the

output or end result we want is efficient industry. Low-cost products are the least electricity in for the most product out.

Mr. Haggerty: You did not include the other utilities that are in that market of supplying energy in that area.

Mr. Allan: I do not have much hangup about the other utilities. There are facing some pretty good competitive pressure and none of them has a complete monopoly.

Mr. Chairman: Let us keep on track so that we do not have an array of discussion.

Mr. Allan: There is a legitimate role for Hydro. If it were me, as a personal opinion I think they should have about 100 technical service representatives out helping a lot of businesses and commercial enterprises in this province to use less electricity. That would be a very valid role for the utility. It is a major choice, stretching current capacity or delaying system expansion. The payoff is lower rents for offices. The payoff is more competitive products and more people working, not necessarily for Ontario Hydro, but in Ontario.

That kind of conservation, wise and efficient use of metering all through the plants and so on, is just as valid as technological improvements that raise productivity generally. The other clear way that the utility can influence events or the broad mass of people is by time-of-use incentives. By bringing the peak down closer to the average, you can use your system more effectively. I call it the Jacuzzi factor. If we had broad-based incentives for people to run their Jacuzzis at half rates or whatever from seven at night until six in the morning, we could shift quite a bit of the load. The people you want to get at there are the ordinary citizens, the eight million people, not industries and office buildings. There are too many rigidities there.

Mr. Shymko: What if you do not have a Jacuzzi?

Mr. Allan: If you do not have a Jacuzzi you might have a Japanese dryer or something.

Down the road, there has to be significant scope at the utility. I know they are doing some work on that. If there were one thrust of ministry thinking on it, we would like to see it accelerated. You can try all of Timmins, for example. Buy all the meters--Hydro can put them in--and double meter everybody in Timmins and run the thing this year. For anyone who buys more than \$500 worth of electricity, you put in two meters. The meter costs \$300; at today's interest rates you need to save \$30. That is the tradeoff. If you can shift 10 per cent of the load, you are ahead of the game. It comes down to that kind of basics if you want to influence a lot of people's electricity use.

The other major ministry interest is in cogeneration and small hydro. Whether you are buying or you are making in Ontario, there are a lot of forces at work in those options--competitive fuel prices and alternative energy supply things. One of the biggest alternatives, and the most attractive, is to have more people generating their own power in their own factories; not to be a customer of Ontario Hydro, but to be a supplier to Ontario Hydro and effectively not to be a Hydro customer at all. If we had 100 of those across the province in some of the major industries, I suspect we would have enormous diversification and flexibility in the system. We have to look at all the

reasons why that has not happened. One reason is that we have relatively low-cost electricity. The relative prices are changing. I suspect you will see natural gas prices in the neighbourhood of \$3.

Mr. Haggerty: Down?

Mr. Allan: No; \$3 being the level for some major industrial users, perhaps by the end of this year. That is a fairly big discount. If you are a heavy user, you can cogenerate by blowing that gas out of the boilers, putting a turbine on it, cranking up your own power and spilling out the rest into the grid. I suspect we will be looking at garbage-burning as a social requirement, not just as a utility concern but something that public policy--

Mr. Haggerty: What leadership is there in this area? Every municipality has a problem finding a new waste disposal site. They have no place to go. St. Catharines is lucky--

Mr. Allan: As the chairman knows and as Mr. Ashe and all the former ministers know, there is probably one part of the whole of the Ontario government that is still plugging like hell for this and that is the Ministry of Energy. We are working with about 20 municipalities.

Mr. Haggerty: You have the upfront money.

Mr. Allan: We are finally going to get London. We have finished our deal. They will be breaking ground and we will have a major burning test facility in place in a couple of years. The technology will be tested and we will find out if there are any emission problems. As an alternative, it will be on the table.

I would like to think that in looking at these things, municipalities will not just say, "Hydro, give me eight cents a kilowatt." They have to look at the tipping fee. They have to look at the choice for the municipality as well. We see it as one that has significant potential. It will decentralize and will diversify the fuel source. We will be doing some work on these elements. The minister has talked about small hydro, under 20 megawatts, with private people building and running that kind of generation.

All these things are ways of being flexible in a fast-moving world, ways of having benchmarks that are external to the utility and ways in which the customer and the supplier are one and the same. When the same corporate executive talks to his utility manager, he does not worry too much about communication. If you are the chief executive officer and your steam plant goes down and your turbine is not working, you will find out what the hell the problem is awfully damned fast.

We would like to think that down the road that option will be given intensive consideration because it has payoffs much beyond the utility itself. That is what we are seeking: payoffs that are broadly based across the whole economy in many many ways, not just optimizing the utilities' approach to it.

Mr. Charlton: There are a couple of issues I would like to deal with. I tend to agree with you that the ministry's role is to look much beyond electricity and to look at the whole energy sector. In your presentation now, you emphasized conservation as one of the aspects of that; that is not only electrical conservation, but conservation of other forms of energy as well. The minister in his presentation today, in the estimates in January, and even

last fall when he appeared before this committee, emphasized conservation in a vague but repeatedly significant way, just by its very repetition.

In the testimony we had last week from Ontario Hydro, its staff openly admitted that it does not have the data it requires to assess adequately and thoroughly the real potential for conservation in Ontario. The same is true for the Ministry of Energy in terms of electrical energy and in terms of all the other energy uses that go on in this province. We heard this morning about a number of studies the ministry has undertaken. Why do we not see a major, thorough study of energy end use in Ontario?

12:30 p.m.

Mr. Allan: I suppose there are two reasons. People are human beings. We really are trying to simulate and extrapolate how people are going to respond in the future. This thing comes immediately to my mind. I listen to the same arguments, "Give me all the data and I can crank them through and I will be confident." I think it is the other way around. You have to try something, have some confidence and have enough common sense about what you put on the table to see whether it will work, and you learn from it.

We have probes that save gas in 30 grain elevators in this province. We are getting more uniform quality grain. If I had listened to all the people in the ministry or to people in agriculture, we would not have any. We have them. People do what other people do. It is word of mouth. They say: "Hey, that works. This thing is working out. I have tried it. It is going."

Mr. Charlton: I understand that.

Mr. Allan: How the heck are you going to anticipate how many people in the grain-drying business are going to spend \$50,000, bang holes in their silos, put in probes and put in microprocessors? You have to have a little faith. You have to put it out so that an ordinary customer feels there is something there to respond to. I do not believe in all these abstract--

Mr. Charlton: I think all the members of this committee fully understand that. The bottom line, however, is developing test programs so you can put the stuff out there and market it. You have to know what is going on out there and you have to know where you can best influence the uses of energy in this province. The only way you can do that is by knowing in a factual, data-based way all the ways in which energy is being used and we do not now have that data.

Mr. Allan: We do not if you mean you want a universe of: "Here are the 1,000 largest. Here are their load patterns. Here are their onsite alternatives." I totally agree. I do not think anybody does know. The ministry probably has the best models in the best sense for two reasons. First, these people get sent out on field trips on a pretty regular basis to smell it, touch it, feel it and talk to somebody, rather than to simulate it somewhere in a back room. Second, if you keep your eyes open and read what other people are doing, you can learn a hell of a lot without having all this stuff cranked out of a computer in some sense. There is an awful lot that the utility, the ministry and the government can learn from just looking at what other people have done.

Mr. Charlton: Ontario Hydro has told us that it does not have the

data it needs to go beyond its present level of evaluation. It agrees that the potential for--

Mr. Allan: What is its end result? Its end result is to say it has 629.3782 megawatts or something available from conservation in the next 10 years. To me that has no bearing whatsoever. What percentage is available--

Mr. Charlton: We have the gross figures. We want the specifics. They are telling us--

Mr. Allan: I do not think gross figures done from that approach are worth a tinker's damn.

Mr. Charlton: I am not asking you about gross figures. I am asking you about the specifics of end uses in this province. Those are the data we do not have.

Mr. Allan: The Ministry of Industry, Trade and Technology does not have a complete model on unemployment, on the number of robots or on the technological changes that are happening. Technology changes are moving so fast that you could do a snapshot instantly from Mars and pull these data out, and by the time you had processed all the data through this committee, they would have changed.

Mr. Charlton: That is the whole point of an end-use study. Until we know what is out there, we cannot accurately use the technological changes that happen to decide what is most useful to do in energy conservation.

Mr. Allan: I guess not. To the extent to which we can get you or use the information we use--

Mr. Charlton: What I am asking is, when are you going to get out and do the major end-use study in this province?

Mr. Allan: By the time we were done on the scale you are talking about, it would be such an enormous job that the world would have changed and invalidated most of the results. If the price of gas drops a buck, 50 per cent of the work we would do over the next three years would not be worth anything. If the price of coal, which is being discounted now--what is really happening is everything is fluid. The people who make those capital decisions are the people who look at their utility bills, whether it is hydro, gas, coal or bunker.

Mr. Haggerty: Here is what you should do when you look at the utility bill. You should say, "We can save five per cent by conservation." You take the average consumer cost of electricity and then you save five per cent. Then go in and take your shot--

Mr. Allan: We know what the big savings are. Industrial is number one.

Mr. Haggerty: That is right. You can do it that way.

Mr. Snell: Mr. Allan, you made a comment that we should look at other jurisdictions and what they are doing, and I agree totally. Let us take a look at some evidence presented to the committee about expenditure levels

here on conservation. Is the ministry really putting its money where its mouth is when it says it is active in conservation?

Mr. Allan: We are probably the last jurisdiction in Canada that is pushing it hard and keeping the spending. I have talked with the federal officials. Everybody else either is not in or has backed out.

Mr. Snell: In several of the jurisdictions that witnesses referred a number of times in the last two weeks, they mentioned that they are spending up to three per cent of the revenue of the utility--Pacific Gas and Electric, Bonneville Power or even in New York--on conservation programs.

If we took even two per cent of Ontario Hydro's revenue, that is somewhat more than \$100 million. Yesterday we heard from a gentleman who talked about the hidden costs and subsidies behind the different options. Within conservation in 1984, federal, provincial and Ontario Hydro expenditures on conservation totalled \$84 million, including programs that have since been cut, such as the Canada oil substitution program and the Canadian home insulation program. We know that Energuide is going and we all know what has happened to the residential energy advisory program.

There are three jurisdictions added together that are spending \$84 million, which is still a pale comparison to what single utilities are doing on a percentage of the revenues. I wonder whether the ministry really is as active as it claims to be, whether it is that serious about demand-side options.

Mr. Allan: I do not want to challenge any of the numbers. I tend to agree that Pacific Gas and Electric, some of the US utilities, spend a lot of money. I suppose that if you have rates that are 50 per cent higher, there is a modest propelling of human interest in not spending as much.

The price system does work very effectively in the energy business. I can assure you that there, one would look at it, and as a utility, probably there has not been nearly as much attention as there might have been, because we are a relatively low-cost electricity supplier in North America.

Mr. Snell: You agree this is an important thing that we would want to maintain in the long run, would you not?

Mr. Allan: Yes, I agree.

Mr. Snell: Okay.

Mr. Charlton: (Inaudible) 50 per cent higher rates, and we want to prevent the things that have happened in places like California. I am thinking of some of the testimony--

Mr. Allan: But I would not equate dollars spent with results achieved.

Mr. Snell: I agree totally.

Mr. Allan: In fact, that can be the most fallacious argument of all.

Mr. Snell: Okay. But then let us take demonstration. You mentioned that gathering end-use data may be insufficient itself, but you seemed to be advocating the value of demonstration projects, getting out there and running

a subdivision, doing an experiment here, doing another experiment in industry there and doing retrofits in another area. Some jurisdictions have up to 17 or 20 of these demonstration projects going on, and that would seem to be another way we could do it.

Mr. Allan: I agree with you.

Mr. Snell: I want to ask you a more general question, though. Obviously, low rates are barriers to a lot of expenditure in the area of conservation, but if we take a very long-term perspective on the value of conservation, I think we will all agree that it is valuable to society.

What barriers do you think now exist besides rates that the committee might be able to deal with and, one would hope, remove or alleviate, in order to help a little longer-term perspective on conservation and to establish what we have heard referred to as an infrastructure on the demand side that would help us, should rates take off again or should we be in a position to want to use more conservation than we are now, that we would be able to activate? As Mr. Charlton pointed out, there are some serious problems in data, but I wondered what barriers you saw from your point of view.

Mr. Allan: Inertia is number one. I do not know. As I put in here, 50 or 60 per cent of the electricity used in industries probably drives motors or pumps of different kinds. If you go in and just go through some of them, you will see that we are running motors in this province that are of 1920 vintage.

There is a capital investment factor here and there is an educational, technical expertise factor, which is why I am an advocate of sending Hydro out to pitch and sell something that is good for the company. It may end up in selling less electricity to a particular customer, but he will be a long-range customer, he will be a healthier competitor and he will sell more product. You go with the secondary effect as good for the utility. The primary effect is good for the customer.

I think we need that whole approach of getting into the customer's situation and indicating to him that there are these kinds of motors today or metering and all that stuff. Those are the things that will make you turn out shoes or--

12:40 p.m.

Mr. Snell: I infer from that, then, that the statutory framework is a limitation, because Hydro cannot currently do that.

Mr. Allan: I do not understand your reasoning there. If you have a lot of employees and if you are in the business of providing electricity, technical advice--to me it is no different to put a hundred guys out calling on companies than it is to put them into any other thing. That is certainly within the mandate of the executives and the authority of Hydro, as far as I am concerned. I do not know of any inhibition to prevent that. You can take them out of what they are doing now and put them into that and you are not going to cost the consumers any more. You are paying them the same bucks; you just give them a different assignment.

Mr. Charlton: As a supplementary on that statutory question, you may be right that it is all right for Hydro to send technical experts out there to inform and to assist, but we heard from your ministry's staff earlier, when

they were talking about the statutory obligations and restrictions, that if the ministry or Hydro designs conservation programs, there is no statutory way currently for anybody to force the public utility commissions to participate.

Mr. Allan: That is true.

Mr. Charlton: All right. What kinds of things do we have to look at to get over those hurdles so we can at least maximize the effect of what we do try?

Mr. Allan: I suspect that if Hydro is benefiting some people such as the Toronto customers, the progressive PUCs would pick it up very quickly.

Mr. Charlton: We want them all to pick them up, not just the progressive PUCs.

Mr. Allan: I am sure you want them all to pick it up, but these things build upon themselves. I would be surprised if PUCs did not see that this was a valid part of their business enterprise.

Mr. Snell: Only 18 out of 320 took up REAP.

Mr. Allan: I understand that, but I do not think there has been a concerted will to tackle it anywhere in the electricity matrix.

Mr. Snell: Is that political will or corporate will?

Mr. Allan: It is not a natural thing to do, given the present situation. It is an unnatural thing you are asking these people to do. Their business is to generate, distribute and sell electricity. I am suggesting to you that for the 20 years out it seems quite unnatural to go in and advise people how to buy less. It really is something that requires a--

Mr. Haggerty: Their advertisements, too, are not to conserve energy but to go out and buy more electricity.

Mr. Charlton: But it is natural in public institutions to obey the law. What do we have to do statutorily?

Mr. Allan: First of all, concerning public attitudes, all of us agree that legislators, Hydro and everybody are not somehow going to try to change people's lifestyles fundamentally, except in ways in which they can see themselves, either individually or as a community, benefiting in the long term. We are not going to bludgeon these people in some kind of police state where we will force them to do things that are unnatural. That is eight million people.

Mr. Charlton: Let us talk about how we make a public institution responsive, though.

Mr. Allan: You keep at it. This committee has an enormous influence, I suspect. It could have enormous influence on the outcome here.

Mr. Snell: I have to stop you here. Just think of it: a three-year program, \$3 million. They are taking a look at demand and supply options. It became clear from the preceding remarks from officials in your ministry that they are doing independent study, but they are not involved in the planning aspects of phase 2, where they are integrating packages of options right now

and incorporating social goals into that with 12 days of hearings and with a staff of two or three people.

We keep hearing from every representative who has come up from the ministry how important the role is that we are playing. Is this an effective way to keep monitoring Ontario Hydro, and especially the importance of its planning process right now with this demand and supply options study? We have 10 people in the Ministry of Energy on a full-time basis.

Mr. Allan: I do not think I accept that 10 people cannot outcompete 1,000. To me it is not whether you have an army or a smaller army at all. It is a simple matter that this thing is so complex, and if you keep studying it--

Mr. Snell: Agreed.

Mr. Allan: This study-up mentality. For Christ's sake, we could be doing this five years from now.

Mr. Snell: Agreed. Now let us go back to your comments on energy policy. If the 10 people are effective and if they are setting energy policy, then I gather you agree with the comments of the chairman of Hydro, who thinks that increasing electricity intensity would be a good thing for the province. That it is a statement of energy policy; it is a statement of industrial policy, and I put to you that--

Mr. Allan: I think the chairman was indicating that there is a correlation. Over time, if there are real and valid underlying forces that are driving us to needing more electricity, it will unquestionably, in my mind, signal that we have a healthy economy, a growing economy, which is clearly a paramount objective. We are not in the business of trying to freeze-frame the world in atrophy. We are still in the business of growth and income generation and wealth generation in this province, fundamentally. The electricity part of it is very secondary, but it is inherently connected in the sense that the technology is driving towards an electric-type shift in the demand curve.

Mr. Snell: Is there a greater shift towards electrotechnologies than towards the demand side that we have been hearing about?

Mr. Allan: It is not a matter of hearing anything. We have spent a lot of time on this and we have projected out to the year 2000. We have made submissions all over this country indicating that even if there were no growth in energy use to the year 2000, electricity would command a larger share of the market. We believe that, no matter what we do, it is inevitable. That is the nature of the technological change that is going on.

Mr. Snell: So you do not think there should be a stronger policy arm outside Ontario Hydro doing a little more monitoring of demand-side programs of energy involved in the environment within which Hydro fits.

Mr. Allan: I do not see any demand-side programs. I have been advocating that we should have some. You will find a lot of responses and you will learn from your mistakes and so on, but you have to have the commitment and the will to do them. If you start demand-side programs even when they are called uneconomic and unnatural, they have their impact in a cumulative sense.

Mr. Snell: In the long term.

Mr. Allan: Yes. I know the ministry spends about \$1 million with a

dragon and a morality play. We go all over to the kids in the schoolrooms of this province. Those kids are six to nine years old, and we are selling conservation to them as an ethic. Surprisingly, it starts to catch on. Their parents tend to understand what they are saying, and at that age the children understand it implicitly as a social value. That is an enormous investment in the curriculum of our elementary schools. That is what we are really investing in. It will pay off 15 or 20 years from now when they get married, establish households and start buying appliances.

Mr. Snell: One final question: Do you think the major vehicle or driver behind the increased demand-side activities that you seem to be advocating should be the utility or the ministry?

Mr. Allan: The ministry has the responsibility of pitching the conservation and doing the demonstrations, having technical assistance, doing all that stuff, in the most general way. The utility has a narrower role focused on electricity and on its best shots. Clearly, in my view, the best shots are industry first and commercial-industrial enterprises second. If they are going to do something with that broad base of eight million people, I suspect the best thing they can do is load shifting.

Mr. Snell: Thank you, Mr. Allan.

Mr. Chairman: Are there any more questions, members of the committee? Thank you, Mr. Allan and Mr. Dominy. The committee stands adjourned until 2:15 p.m.

The committee recessed at 12:49 p.m.

CA24N
XC 2
85N22

N-48

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

TUESDAY, APRIL 15, 1986

Afternoon Sitting

SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Asne, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, R. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Polsinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitutions:

brandt, A. S. (Sarnia PC) for Mr. Jackson
Shymko, Y. R. (High Park-Swansea PC) for Mr. Gordon

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy
Richmond, J., Research Officer, Legislative Research Service
Snell, B., Consultant; with Canada Consulting Group Inc.

Witnesses:

From Nevada's Office of Consumer Advocate:
Wellinghoff, J., Consumer Advocate

From Public Citizen:

Markowitz, P. W., Policy Analyst, Public Citizen's Critical Mass Energy Project

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Tuesday, April 15, 1986

The committee resumed at 2:21 p.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: The committee will come to order, please. We have Mr. Wellinghoff appearing before us this afternoon.

NEVADA'S OFFICE OF CONSUMER ADVOCATE

Mr. Wellinghoff: My name is Jon Wellinghoff and I am consumer advocate for the state of Nevada. I apologize that I do not have a written presentation for the committee other than an article I wrote that appeared in the August 8, 1985, Public Utilities Fortnightly. I believe you will later be given a copy of this article, which is entitled The Model for Statewide Integrated Utility Resource Planning. The article will form the basis of my presentation here today, and I will also try to update some of the information in the article.

Prior to going into it, however, I should give you a little background on who I am and the context I come from, to give you an idea of why I am here. As I indicated, I am the consumer advocate for the state of Nevada. That is a state governmental position, appointed by the attorney general in the state of Nevada. The function of my office is to represent ratepayers, consumers of utility companies, before the Nevada Public Service Commission. The commission is the regulatory body, the authority in Nevada which regulates the investor-owned utilities in the states. It regulates only investor-owned utilities. Our major utilities are investor-owned, and the subject of my discussion today will be the electric utilities.

We have two major electric utilities, one in Reno and one in Las Vegas. The Reno utility is the Sierra Pacific Power Co., a utility of about 700 megawatts peak power in the wintertime. In Las Vegas, the utility is Nevada Power Co. with about 1,400 to 1,500 megawatts peak power. They are relatively small in comparison to Ontario Hydro, which I understand is about 20,000 megawatts. There is quite a difference in size.

Our office is responsible for representing ratepayers before the Nevada Public Service Commission. In doing that representation, we are there for the commission when a utility company asks for increased rates. Those increased rates cannot be put into effect unless the public service commission approves them. The commission acts much as a judge in that situation. Our office is there much as an attorney on one side to represent the public in the public case. The utilities on the other side make their case to the public service commission, and the commission then makes an ultimate decision.

Our office was created in 1981 to represent the interest of the public. Starting out in that office, I hit the ground running initially with rate cases. After a few of these were done, we were somewhat successful but I saw more on the horizon. I realized it was necessary to look beyond the brushfire situation, beyond the day-to-day situation of utilities constantly applying

for new rates. We had a situation in Nevada during the early 1980s in which utilities had to build new plants, increase the cost of fuel and put in a lot more capital expansion because of the oil crisis in the mid-1970s and because Nevada was growing very quickly.

As a result, we had a lot of additional plant that was being put into rate base by those utilities, and those increased rate base amounts were causing rates to skyrocket in Nevada. We had rates that were going up in the neighbourhood of 20 to 30 per cent per year. We really did not see an end to it.

Aside from doing all we could in rate cases, our response was to draft the Utility Resource Planning Act, the SB161, at the 1983 session of the Legislature. That act is the subject of the paper I mentioned before. It has five parts. First, it requires utilities in the state of Nevada to forecast their future demands; then it requires an assessment of demand options, that is conservation and load management potential, assessment of supply options, the integration of demand and supply and a two-year implementation plan.

In more detail, this is what utilities were asked to do under the act that was passed in 1983. In load forecasting, it requires a 20-year forecast of future demand and a 10-year record of historical demand. It also requires the development of a plausible range of forecasts, that is a high, a medium and a low forecast, with the medium one representing the utilities' estimate of that most likely to occur in a future time.

It also requires the utilization of end-use methodology in forecasting. This is very important. Under the act and, more important, under some regulations that were enacted to implement it, utilities in the state of Nevada are very specifically required to use end-use forecasting. I was here this morning and heard quite a bit of discussion about the value and use of end-use data. In Nevada, under the act and subsequent regulations, we determined that, to ensure we are adequately planning for the future, we have to have as accurate a picture of the future as possible.

In doing that, we looked at what was being done in other areas. We looked at the Bonneville Administration and California and determined that in those areas they had believed end-use forecasting was the most accurate way to determine what was going on in the service areas in the uses of electricity that were driving the peak and the uses that were requiring the utility company to build that next increment of plant.

Without those kind of data, we felt two things would be impossible: it would be impossible to accurately forecast future demand and impossible to adequately determine what end uses needed to be focused on for demand-side planning, energy conservation and load management. You cannot do adequate demand-side planning without a handle on what is happening with your end uses. That was specified not in the law itself but in the regulations that were enacted pursuant to the law we had passed in 1983.

In addition to load forecasting, the law and the regulations require consideration of conservation and load management. That requires that price-induced demand reductions and reductions in demand from the continuation of current utility-sponsored and government-sponsored programs be explicitly accounted for in a demand forecast.

It also requires that energy and demand savings through new utility-sponsored conservation and load management programs be evaluated on

three levels: the base case, the technically feasible case and the cost-effective case.

Finally, it requires that design of an implementation plan for select cost-effective conservation and load management measures be put into the plan. That is what it required on the conservation and load management side.

On the supply side, there was a requirement for the consideration of supply-side options. They required that a wide range of resources available to meet future supply needs be evaluated, including utilization and optimization of existing supply resources, power pooling, power purchases, exchanges of power and also alternative fuels, renewables such as solar, wind and geothermal.

On the supply side, the law and the regulations required that the utility cover the whole waterfront, look at what was out there, not only what it could build conventionally in its service territory but also what it could purchase and some of the more exotic things that might be coming on line in the future that would affect this 20-year plan.

The plan also required the minimization of the present worth of future revenue requirements. That is the basic tenet of the Nevada program. We do not look strictly at environmental, societal or social concerns; the driving force and concern of the least-cost plan in Nevada is the minimization of the present worth of revenue requirements over time.

What is set as a goal for the utilities and what they have to strive towards and prove to our public service commission, in essence, is that their 20-year plan is going to be the least expensive thing for them to do to provide reliable energy resources to their constituents, the ratepayers in their service area: that it is the least expensive over time in total costs, not the cheapest rate at the end of that time but the lowest bill these utility consumers could pay over time, given a different mix of options and resources.

2:30 p.m.

The mix of resources includes all I have indicated on both the demand and the supply sides. In doing this, the utilization of minimizing the current worth of revenue requirements requires that a set of models or methods be used in the analysis. These include a screen model, a production costing and reliability model, an engineering and economics model, a risk analysis model, a corporate financial model and a model for integrating in the demand and the supply side.

We are concerned here not only with the minimization of revenue requirements over time for the customers of the utility but also with the financial health of that utility. We do not want to minimize revenue requirements out bankrupt the utility. That is not our goal. We look very carefully not only at the minimization of those revenue requirements but also at what is going to happen to the profits of the utility. These are investor-owned utilities in the state of Nevada, and we have to secure that profit level to ensure their bond ratings are adequate and their borrowing ability is adequate to be able to go out and seek the capital necessary to expand.

From our analysis, Nevada probably is one of the fastest if not the fastest growing area in the United States. I believe the Las Vegas area where

Nevada Power is located is the fastest growing area in the country at this time.

Mr. Snell: What is the growth rate in the Las Vegas area?

Mr. Asne: Money or the people?

Mr. Snell: I mean in electricity; I am sorry.

Mr. Wellinghoff: The projected growth rate for Las Vegas right now, under the newest plan that Nevada Power is going to do--we just got through with a load forecasting workshop last week and their planners, using end-use techniques, which we think are the best techniques for load forecasting, determined that over a 20-year planning period the Las Vegas area will grow in peak load by about 2.6 per cent per year. That is a very fast rate compared to the rest of the United States, from my knowledge of what is happening there.

We believe the 2.6 per cent rate probably is a little too high, and we are arguing with them about it right now. This is a process that goes on, and I will explain in more detail. The utility failed in its load forecast to consider any increases in the efficiency of appliances over time in their 20-year forecast. Appliances are going to get more efficient over time, and if they roll that into the forecast, I am sure it will reduce it below the 2.6 per cent they have forecasted right now.

Mr. Snell: What would be the equivalent of what we call gross provincial product here, and on a national scale, gross national product? What would be the increase in output in a place such as Las Vegas compared to the 2.6 per cent growth in peak demand?

Mr. Wellinghoff: I do not have those figures for you. Primarily, the output would be in the service industries. Las Vegas is primarily a service-industry economy, but we do not have many services there. We do not have the data localized for Las Vegas, and I cannot give you them. Actually, we are trying to work on some of those data right now. I have an economist in my office who is trying to do that.

Beyond the considerations of the supply and demand sides, the next part of the plan that is required in the regulations in the general order is the integration of demand and supply. It requires integration of the conservation and load forecast options on the demand side with the resource options on the supply side to derive the least-cost plan. Once the utility has analysed its options on both sides, it must put them together in a way that shows the cheapest things to do, the least-cost things to do, and puts them into a total package to present to the public service commission.

The next item is the sensitivity and risk assessment. Here we require sensitivity analyses and risk analyses for the assessment of all major assumptions and estimates used in the plans, both on the demand side and the supply side, to determine where the risks are of putting these demand-side options into effect, what can we expect from these demand-side options and also from the supply-side options.

Finally, the last part of the planning process as it relates to the utilities' requirements, is a two-year action plan. Procedurally, the way this process works is that the utilities must develop their plan every two years. Every two years that plan has to be submitted to the public service commission.

The commission is then given a three-month period during which it analyses the plan, reviews it and determines its adequacy. Hearings are held and all other parties, including my office, participate in those hearings, give a critique of the plan and present our own expert witnesses and consultants with respect to the plan. At the end of those hearings the commission determines whether it is going to accept or reject the plan.

As part of the process, the plan shows what the utilities intend to do over a 20-year planning period. In addition, it shows the actions they have to take in the two-year planning period between the time the last plan was filed and the time the next plan will be filed.

Mr. Snell: Are all the steps you have described required by law? Are you saying they are legislated?

Mr. Wellinghoff: Yes. They are either required by the legislation or the regulations enacted pursuant to the legislation. Most of the procedural steps I have outlined for you are required by the legislation. The specifics, such as end-use forecasting, etc., are required by the regulations.

Mr. Snell: It sounds very extensive. We had a presentation yesterday that described the Nevada legislation as the most prescriptive in the country. Is that a fair statement?

Mr. Wellinghoff: It is all in the eye of the beholder. The law is a page and a half long; it is not very long. As for specifications in the law procedurally, it is prescriptive in the sense that it says the utilities have to file a plan every two years. The plan broadly must contain a 20-year load forecast, a two-year action plan and a resource plan that integrates demand and supply-side options together. It says in the law that the public service commission must review the plan in a certain prescribed time. Those items are all prescriptive in the legislation.

It is very simple from the standpoint that it is very clear and easy to read. We have never had any interpretation problems with respect to what the law meant or required the utilities to do. It is prescriptive, but it is simple enough for the utilities to follow and easy enough for them to be able to comply with the law without any serious problems of noncompliance.

As I indicated, the last area the utilities have to provide in this plan is a two-year action plan that tells what the utilities are going to do in an interim two-year period. This is a very important part of the law. The two-year action plan shows what actions the utility must take before it comes up for review the next time. Those actions often evolve and contain a number of demand-side measures. There might be a number of demand-side pilot programs, energy conservation and load management programs that are going to be engaged in during that two-year period.

There are also a number of very specific actions they might have to take. For example, to put in a new power plant or a new transmission line under Nevada law, not only do we have the resource planning process, but also at any time a utility wants to construct a new power line or power plant, it must come in for a permit. That permit must be approved by the public service commission, but the permit cannot be granted unless the transmission line or power plant is part of a previously approved resource plan. Therefore, in the resource plan, we get an opportunity to look at what the utility is going to do.

The utility will tell us whether it is going to come in for a permit for a transmission line or power plant and whether it is going to do a certain demand-side program and now that is going to be carried out in this two-year action period. Requiring this two-year action period and plan keeps the utilities on track and makes sure that, in the microsense, over the two-year period, they are carrying out what will ultimately lead them to the least-cost plan in the 20-year period.

To carry out this whole overall planning process, there are five conceptual parts to it that are contained in my paper. I would like to go over them briefly.

The first part is planning process integration. One thing I want to emphasize very strongly here is that I am only speaking for Nevada and I am not speaking officially on behalf of the state. I was invited to testify before this committee, but I do not pretend to be able to tell you and Canada anything about how you should run your governmental affairs here. I am only indicating what has worked for us in Nevada. It may or may not work well here. I know you have a very different situation with a public utility rather than a privately owned one. You have a much larger utility and a very different structure of government.

In Nevada, we believe an integrated planning process is essential. We have what amounts to one agency, the Public Service Commission, that has complete authority and control over the process. If we did not have that situation, it would be much more difficult. Let me give you an example of where it is much more difficult and, because of the difficulties, there have been instances where the planning process has suffered.

2:40 p.m.

There is the California Public Utilities Commission and the California Energy Commission. They have separate responsibilities and separate duties with respect to the overall planning process of utilities in California. Because neither entity has complete control and authority, the planning process has been split. They have suffered because of it; they have had a lot of problems there.

Some of you may have read about the problems with respect to buying too much cogeneration and with solar fraud. On the initiative of the California Public Utilities Commission rebates were given for solar systems by California public utility companies and because of the level of the rebates, the lack of checking and other things, solar systems have been installed fraudulently. They are oversized, do not work and are a waste of the ratepayers' money.

In Nevada we like to look at California's mistakes and learn from them. We try to do that so we do not replicate them. The point I am making is that we try to integrate the planning process in Nevada under one entity, the Nevada Public Service Commission.

The second part is that we need to have sufficient methodological specification. It is important when you sit down with the utilities that you are all on the same playing field and talking about the same thing. You do not have one utility doing econometric load forecasting, another doing end-use forecasting and different people using different methods and models.

In general, we specify generically. We do not specify brand names of software, but we specify generically the kinds of models that are to be used

for load forecasting, for demand-side analysis, for supply-side analysis, for the production-costing simulation runs, for the sensitivity analyses and for the financial models. That kind of specificity is necessary in a generic sense, so people know what is expected of them. The utilities, therefore, know what is expected of them in Nevada. That is another necessary requirement.

The third part is that we require implementation. There has to be some method by which the utilities have to see that there is going to be a continual review of the implementation process. I talked about the two-year action plan, under which the utilities know that what they do in the two-year period will be reviewed two years later, to see whether they lived up to what they said they were going to do on the demand side and whether they did the planning they were going to do on the supply side. Have these things been adequately integrated together in a two-year time frame to ensure that implementation will carry out over the 20-year time frame? You must have the required implementation.

The fourth part is that the utilities are responsible for the plan creation. This is essential. Utilities that have to implement the plan have to be responsible for putting it together. Again, I can point to the experience in California as one we used as something we did not want to copy. The California Energy Commission does its own load forecast for the state, whereas the utilities do separate load forecasts. We did not want to see a situation in Nevada where we had dual load forecasts. We did not think that was appropriate, because it was a waste of funds. It was a situation that would drag out hearings for months and never getting us anywhere.

What we did was to give the utility the responsibility for creating the plan, the forecast and the integration of both the demand and supply sides in the plan. If the utilities have that responsibility, then the Public Service Commission staff, our office and consumers can come in and critique and analyse that, tweak it here and there and say, "Maybe you should have done this instead of that." Ultimately, the utilities are the ones that have to live with it because they have to carry it out. Their personnel will put it into effect. We think the utilities' responsibility for planned creation is essential.

The fifth part of this framework in Nevada that we set up is plan enforcement. There has to be some way to ensure that the plan is implemented and can be enforced. The enforcement hook we have in Nevada is what I mentioned before. When utilities want to build a new power plant or a new transmission line they have to get a permit. The only way to get a permit is to ensure that the power line or power plant was in a previously approved plan, so the plan can be enforced.

The utilities cannot move ahead on a major supply-side project without plan approval, which is the enforcement mechanism. They could move ahead but it would be at their shareholders' risk. Very few utilities are willing to move ahead at shareholders' risk these days. They are very careful to ensure they have approved plans that have these resources contained in them and, therefore, those plans are the ones that are going to be ultimately approved into rates later. Utilities are concerned about getting their rates recovered.

Those are the five aspects of the utility resource planning process. I would like to spend five minutes going into detail about how this process has worked in Nevada. Then I would like to give you an opportunity to ask any questions you may have about how the metaprocess has worked. As I indicated, the law went into effect in 1983. Utilities in the state of Nevada were

required to file their first plans on July 1, 1984. They were given one year from the time the law went into effect to file those first plans, and it was quite hectic.

We allowed for quite a few exemptions to the plans as far as complying with certain aspects of the regulations was concerned. Nevertheless, we got the plans filed and before the Public Service Commission within a year. We had hearings on those plans. Our office critiqued the plans and we brought in outside consultants. My office's budget is paid for through utility rates. There is a mill tax on all utility rates, and my entire office's budget is paid for through that mill tax.

The whole budget of my office is about \$700,000, as part of which I have a \$200,000 budget devoted to outside consultants. Resource planning takes about a third to a half of my consulting budget, and about a quarter to a third of my staff time. I have eight people on my staff right now. I have an economist who does utility resource planning almost full-time. I am an attorney and I work on utility resource planning for about one quarter of my time, so it is about a fourth or a third of my total staff time.

The two major utilities in Nevada, Nevada Power and Sierra Pacific, filed plans. After those plans were reviewed and critiqued, the Public Service Commission issued an order and the commission approved both plans with exceptions and with directions to the utilities to do certain things to improve those plans. Over the two-year period from 1984 to 1986, the utilities have made improvements.

In addition, something has evolved out of this planning process that is not in the law and not in the regulations, but is very noteworthy and should be mentioned. After the Public Service Commission came out with its orders, around November 1984 the utilities decided--it was not only the utilities' decision; it was our decision as well and also the decision of the PUC staff --that instead of fighting about these plans before hearings of the Public Service Commission and instead of doing the major work at hearings before the PUC every two years and having three or four weeks of hearings, we could have workshops once a month over the two-year period to work out our differences on these plans. That is what has evolved.

Every month, a member of my staff, a number of the individuals from the utility companies, a number of individuals from the Nevada PUC staff and other interested parties, whether they be consumers, consultants or any other individuals, meet in a workshop forum once a month to discuss issues related to the next utility resource plan filing. We are going to have a plan filing in July 1986 from our two major utilities. I anticipate that plan filing will be stipulated, and all parties will agree on what is finally contained in the plan because of the workshops that have taken place over the last 15 months or so since November 1984.

In each workshop, we discuss the issues such as load forecasting, the proper methodologies to be used in load forecasting, demand-side measures, the various pilot programs the utilities should go into, the most appropriate and the best programs for their service territory, how they can save the most energy, the most cost-effective supply-side measures, the next power plant they want to put on line, how big it is, how much it is going to cost and how it relates to and integrates with the demand-side measures. We discuss these things in workshops in a nonadversarial atmosphere in such a way that we can all agree upon these things, rather than fight about them at a hearing.

Mr. Snell: I am not sure if you mentioned who all participate in the workshops, aside from the utilities. Do you represent the interests of the public through your office or are other interest groups allowed into these workshops?

Mr. Wellinghoff: Our office represents the interests of the public or the consumers. I have a staff and I bring my staff economist or a staff accountant. We hire consultants who assist us as well, people who have expertise in load forecasting and other areas.

2:50 p.m.

Aside from my office, no other members of the public are excluded from these workshops. In the past, the workshops have had various consumer group representatives from Las Vegas, for example. There are a number of consumer groups in Las Vegas that represent utility consumers, and they participated in the workshops. A number of third-party energy service contractors participated in these workshops and a number of equipment dealers participated in the Las Vegas workshops. People who are interested in the demand-side measures and the various conservation measures have all participated in the workshops. The workshops are open.

Mr. Snell: When you call it a workshop, I gather it is quite structured in what you are dealing with. I am thinking about some material that the staff has reviewed here from the Northwest about how extensive its public consultation program is, with town hall meetings virtually all year long. How does the workshop compare to this? Is it at all similar to going and getting the views of the public or is it completely different? Is it more problem solving?

Mr. Wellinghoff: The workshops are very problem-oriented. I have provided you with a copy of one workshop's minutes which you may want to distribute to the committee later. There is an agenda at the workshops set by the utility. The utility designates someone to be in charge of the resource planning. That designated individual sets the agenda for the workshops, which deal with the issues, the specific component parts of the resource plan and the two-year action plan that must be filed by the utility in July of the next even year. Those workshops are very specifically structured to deal with the individual items the utility must address in its next filing before the Public Service Commission.

From that standpoint, workshops are structured on whether they are going to deal at any one time with load forecasting, demand-side planning or supply-side planning. Different topics will come up at different times, depending on the agenda. It is not a process of simply going out and getting public comment. It is an ongoing process but a very structured one that leads to an eventual consensus process on what the final plan will be.

Although I want to emphasize that we do not agree on everything--there are plenty of times when our office and the utility companies disagree--at least in the workshop process we can say to each other: "We agree to disagree on this issue, so we will bring the issue to a hearing before the Public Service Commission. Let us mark that one up on the board over there and go back and see what we can agree to over here." We do that on a continuing basis.

Mr. Snell: What is the atmosphere in the workshops like?

Mr. Wellinghoff: It has gone all the way from very friendly to very

acrimonious. It depends. There are times when we have had some very heated discussions about, for example, various demand-side measures. We had such heated discussions with one utility--I will not mention which of the two--on demand-side measures that we had to go an interim hearing.

At that interim hearing the Public Service Commission made specific orders. The utility had to carry out these orders which included changing its demand-side program completely. At the utility's own volition, it also changed the manager of its conservation and load management division. They moved him somewhere else in the utility and got somebody else in to do the conservation and load management section.

Sometimes the workshops are very heated and sometimes they are very friendly.

Mr. Snell: Are the utilities, in retrospect, glad that this kind of structure has been put in place and happy to see the workshops? I have talked to individuals in other jurisdictions who have said: "We resisted the legislation very strongly. We resisted the push towards demand side, but looking back, we are very glad it happened." What is the attitude of the utilities with respect to your office and the workshops?

Mr. Wellinghoff: It is funny. When I first proposed the legislation, the utilities in our state all said, "We are all doing least-cost planning." I said: "Fine, you will not be bothered by this legislation. We will put into legislation what you are already doing." They seemed to accept that, but they now believe we had some different concepts of what least-cost planning was.

Generally, the utilities are glad because they believe they are a lot less at risk now than they were in the past. In the rate-making process with an investor-owned utility, they are very concerned about actually being able to get certain plant items into the rate base. If you have a piece of plant and if our office comes in and argues that you overbuilt and that plant should not be put into rate base, you will be very much at jeopardy about whether you are going to recover your costs in that plant and make a profit on it.

On the other hand, in the resource planning process, if our office and the PUC staff is in on that plant decision from the very beginning, back before they even decided to go for a permit on that plant, my office cannot challenge it ten years down the road and say, "You really did not need that plant, so we are not paying for it." There is less risk to the stockholders of the utility. There is more risk put on the ratepayers, but it makes sure I do my job and do it to the extent that I can assure the ratepayers that this really is a least-cost plan for the future. It puts more responsibility on the governmental entity and it takes some responsibility off the utility.

I have no other comments to make on least-cost planning data, but I will be glad to answer any questions anybody may have.

The Vice-Chairman: I have a list here. Before I call on Mr. Brandt, who is first on the list, will you answer a question for me? I am trying to put the Vegas utility into context. Do you recall roughly how much its services derived from the Boulder Dam?

Mr. Wellinghoff: About 10 per cent.

Mr. Brandt: Maybe I could supplement that question because it was one of the ones I had on my list. What is the mix of power in Nevada?

Mr. Wellenghoff: Primarily coal-fired generation. Both the north and south utilities are now using coal. The northern utility used oil and gas up until about 1979 when it switched over to coal. Now it has put on two large coal plants which caused our rates to go up tremendously. It is now primarily on coal. The average residential rate in northern Nevada is 8.5 cents per kilowatt-hour. The average residential rate in southern Nevada in Las Vegas is very low, about five cents a kilowatt-hour.

Mr. Haggerty: Is there a split rate on consumer bills?

Mr. Wellenghoff: No.

Mr. Haggerty: You said five and eight.

Mr. Wellenghoff: There are two different utilities 500 miles apart. The southern Nevada utility in Las Vegas charges about five cents a kilowatt-hour to residents. The northern Nevada utility, which is a completely different system--they are not even interconnected, they are so far apart--is about eight cents a kilowatt-hour.

Mr. Brandt: One barometer in determining the effectiveness of the function you perform in Nevada would be a comparison of rates with another jurisdiction. What do your rates look like in comparison with California, which has had a different set of problems?

Mr. Wellenghoff: Rates in Las Vegas are much lower than California. Rates in northern Nevada, the Reno area, are about the same as California as far as PG & E is concerned. I am not sure that comparison helps, but that is where we come out.

Mr. Brandt: Do they have a similar method of power generation in terms of using coal as the prime source?

Mr. Wellenghoff: Not particularly. California has much more of a mix of power. It has some coal in some of the larger plants it owns in the southwest area. In fact, one of the Nevada plants that just blew up last year is largely owned by Southern California Edison, which is a coal plant.

They have nuclear plants in California, but we do not have them in Nevada. They also have more oil and gas generation in California. They have quite a bit of hydro they get out of the northwest through the northwest intertie which comes down the Pacific coast. There is also an intertie that goes right through Nevada that we take no power off at all. It goes right to southern California and transmits quite a bit of hydro power as well.

California has more of a mix of power. We are more dependent upon coal, although in northern Nevada we do get some hydro from the northwest on some lines we have up to Oregon and Washington.

Mr. Haggerty: Is coal supplied in Nevada?

Mr. Wellenghoff: We get the coal primarily from Utah. There is quite a bit of coal in Utah.

Mr. Brandt: I wanted to pursue the question of your planning process. Obviously, one of the factors you have to look at is the length of time it takes to bring new power generation on stream. Do you have a figure you use with respect to predicting when you are going to require additional power for your state?

Mr. Wellingtonoff: The utilities vary in north and south, so I have to talk about the northern utility and the southern utility. In southern Nevada, Nevada Power is proposing to purchase 100 megawatts from Utah in 1988, two years from now. Whether it is actually needed at that time will be a subject of review in this resource planning process we are doing. Beyond that, I am not sure what the next power plant is projected for in southern Nevada.

3 p.m.

I do not believe northern Nevada has any power plants projected prior to 1995. If there are any, they will be small geothermal plants in the 50 megawatt range. We have quite a bit of geothermal resource in Nevada that is being explored right now. There are three demonstration pilot geothermal plants that are being put on line in northern Nevada. It is assumed those plants could compete with a coal plant and probably will be the supply resource of choice for the future for northern Nevada.

Mr. Brandt: How does that sit opposite your earlier remarks about Nevada being one of the fastest-growing jurisdictions, ostensibly in terms of population and power demand? If there are those kinds of growth pressures, you would think it would follow that there would also be attendant growth pressures with respect to the utilities themselves. However, you indicate that is not the case and that you do not have any new power proposed in terms of generating capacity for the future.

Mr. Wellingtonoff: The 2.6 per cent growth rate that the utility is projecting for southern Nevada is a rate that allows it comfortably enough room over the next seven to 10 years to be able to put in a lot of demand-side measures. The utility in southern Nevada, largely because of this planning process and also in part because it was doing it prior to this planning process, is doing a lot of demand-side work.

For example, it has a load-management program with air-conditioning cyclers on its residential air-conditioning units of about 30,000 units right now. It actually cycles those units off and on five to 10 minutes out of every hour, thereby reducing the peak by some 20 megawatts. It has some programs that it is putting in place and there are a lot of programs it is going to be aggressively pursuing in the future that will take up a lot of the supply-side requirements that would be necessitated otherwise out of growth.

For example, this summer the southern Nevada utility will be going into a very aggressive program on evaporative coolers. The peak in southern Nevada is primarily driven by air-conditioning. Residential air-conditioning is one of the areas where the peak is most severe. If it can get the residents to start going over to the new two-stage evaporative coolers, which appear to provide the same comfort level as refrigerant air conditioners, but provides that comfort level at about one quarter of the power, we can reduce peak significantly and yet continue to grow. The whole goal of resource planning is to do it at the least possible cost.

Mr. Brandt: Do you have a figure that you use in connection with an acceptable level of surplus capacity within the system? Obviously, you have two major systems, the north and south systems in Nevada, but what figure do you use as being acceptable?

Mr. Wellingtonoff: The figure we use is about 20 per cent. Another reason we have this latitude now in Nevada is that both utilities' current reserve margins are over that 20 per cent figure. It is closer to 30 per cent now. The acceptable level we have been using in Nevada is 18 to 20 per cent.

Mr. Brandt: Going back to one of my earlier questions, when you said "based on the 2.6 per cent growth rate," I gathered you probably had adequate power for seven to 10 years.

Mr. Wellinghoff: That is with the exception of the 100-megawatt purchase in Utan that I mentioned. In 1988, the southern Nevada utility is going to purchase--in fact, it has a contract now with Utah Power and Light--100 megawatts from one of its plants.

Mr. Brandt: I am not certain I have a time frame for what you consider adequate to bring new power on stream. I wonder whether that seven to 10 years you mentioned was what you look at as being adequate for purposes of planning and forecasting your future requirements. Perhaps I am incorrectly reading something into your earlier statement. Can you be a little more specific? If at some future point you did require it, based on your growth projections and even the purchase of additional power from Utah, what would seem a comfortable time frame? I am trying to look at the approval process as well as the construction time frame that would be required.

Mr. Wellinghoff: In Nevada we tend to do things rather quickly. Seven years would be--

Mr. Brandt: You certainly take my money rather quickly whenever I visit there.

Mr. Wellinghoff: Yes. That is why those casinos keep getting bigger.

From a time-frame standpoint, from the beginning of the permit process to the end of construction, experience in Nevada has shown it is not unrealistic to be able to plan, get the permits for and build a coal plant within a seven-year time frame. In northern Nevada, that can probably be done even more quickly with geothermal plants. With these geothermal plants they are proposing to have 50 megawatt units on skids. In essence, you have a package unit you can bring in and put on skids over a geothermal resource. If for whatever reason that resource gives out, you can move it on to the next resource. In the geothermal field, when that resource gets to be one that is proven and reliable, and I think we are getting very close because we have pilot demonstrations, we will see units that will be able to be put on line in the three-year to four-year range instead of the seven-year range.

Mr. Brandt: Are you including the requirement to build the actual power corridors?

Mr. Wellinghoff: Yes. The transmission corridors take about two years. They actually take less time than the power plants.

Mr. Brandt: Can you give us some brief overview of what the approval process is for the actual construction of the corridors?

Mr. Wellinghoff: This is if it is wholly in Nevada. If we go across state lines we are talking about quite different things. If we are talking about a corridor in Nevada, there is one place you go to, with one process, one permit and one hearing. The hearing probably takes two days.

The Vice-Chairman: Just like ours.

Mr. Wellinghoff: You have to remember this is Nevada. There is a lot

of open space there. You have to remember there are a lot of places where they would rather put in a transmission line just to see something out there.

The Vice-Chairman: To break the monotony they are glad to see a switch there.

Mr. Wellinghoff: The transmission permit process is not lengthy at all in Nevada. We do not have problems with it. There are situations where that can be turned around. For example, the northern Nevada utility is trying to build a line from Reno to Sacramento across the Sierra Nevada. It has been going through the permit process with federal permits and California permits for the past three years. I am not sure it has completed the permit process. I think it still has some hoops to go through. It may take another two or three years to do it.

Mr. Haggerty: That is something like Ontario.

Mr. Wellinghoff: That is a line across some environmentally sensitive areas and two states.

Wholly within Nevada, there is a transmission line that came all the way from Idaho down to Reno, a distance of some 450 miles. I participated in that permit hearing. It probably took two or three days to do that whole hearing.

Mr. Brandt: There is a process that allows objectors to appear before the hearing board.

Mr. Wellinghoff: Absolutely.

Mr. Chairman: Is that all, Mr. Brandt?

Mr. Brandt: Yes, I will give up the floor to another member.

Mr. Charlton: You should also know, Mr. Brandt, that they put artificial foliage on the towers.

You have basically been through one round with the new legislation, the new process.

Mr. Wellinghoff: That is correct; one filing of the utilities. We had one interim filing for one utility that I mentioned. It is going to file its second round in July 1986.

Mr. Charlton: Are you far enough along to evaluate whether the new process is successful or is it going to take a couple of rounds before you can really evaluate it?

3:10 p.m.

Mr. Wellinghoff: The current process is preferable to the prior process from my perspective. I am not sure the utilities would agree, but from my perspective it is preferable. It allows us more time and more ability to analyze and critique what the utilities are planning with respect to both demand-side and supply-side measures. It gives us more of an opportunity to persuade the utilities on an individual, one-on-one basis whether or not the process is the correct one and the plans are ones we think are the best ones. I can also say we have already seen some concrete successes, some positive benefits from the program. For example, Nevada Power, the southern Nevada

utility in Las Vegas, recently had its bond rating increased. One of the reasons that bond rating was increased that was given by the bond-rating agency--I believe it was Standard and Poor's of New York--was that Nevada Power was involved in and was required to be part of an integrated resource planning process. In part, the bond rating was raised because it participated in this process.

In addition, we have seen benefits on the demand side with utilities actually accelerating conservation programs that I do not believe they would have been involved in if we had not been there and this process had not been in place, such as the approval program I mentioned. I also have in my brief-case some we are reviewing now. Nevada Power is proposing a very aggressive, accelerated lighting program. It is going to do extensive lighting changeouts in Las Vegas that could save tremendous amounts of energy. We are seeing more aggressive activity on the demand side and also more participation in the process, so there are some benefits.

Mr. Charlton: From that, has load forecasting accuracy improved as a result of the process?

Mr. Wellenhoff: It has. I should make up some charts. I have done only side-by-side comparisons. If you went back to 1979 and took the utilities' projected load forecasts, and then looked at the 1983 load forecasts done under this resource planning process, they are radically different. We are seeing radical changes in load forecasting. From that standpoint, we have seen the accuracy in load forecasting improve by significant factors.

Mr. Snell: In terms of that happening, they have all gone down and changed. Is that a reflection of accuracy?

Mr. Charlton: We have had a lot of discussion in the committee and we have had presentations on both sides of the question of reducing the uncertainty of load forecasting in terms of the possible bands of high and low. In Nevada have you been able to reduce that uncertainty in the high and low in terms of load growth as a result of this process?

Mr. Wellenhoff: I think we have. In part, Mr. Snell is right that all utilities have reduced their load forecasts. They have seen lower growth over time because of efficiencies in appliances and other things. In addition, we have seen definite trends in improvement and accuracy because our utilities have switched from a largely econometric method to an end-use method of load forecasting.

Over the past three years, Sierra Pacific Power Co. has spent about \$3 million. To my knowledge, it is doing the most aggressive end-use data collection program of any utility in the United States. It is actually putting end-use meters on all its classes--industrial, commercial, residential--to find out how much they are using in what end uses, and then factoring that into the models it is using to do the forecasting. From that, we have seen tremendous improvements in its load forecasting over what it used to do under the econometric methods.

Mr. Charlton: You mentioned in your presentation that one of the major factors that was an impetus for this legislation and this new procedure was the rapidly escalating rates; I think you said at about 20 per cent a year.

Mr. Wellenhoff: That is right.

Mr. Charlton: In addition to those rate increases, were there other factors that pushed this whole process forward?

Mr. Wellenhoff: There were. We were seeing utilities primarily emphasizing the supply side. There were studies by other individuals being done in the country, which I had looked at and which I am sure this committee has had before it, that indicated certain demand-side measures could in many instances cost consumers less than the supply-side measures.

We wanted to see how we could get the utilities to look at both of them together in an integrated fashion. The rates were one factor. The other factor was: "Are we really getting the biggest bang for our buck? Are we getting the most amount of energy for the least possible cost and doing the most efficient thing with regard to utility planning?" We were not sure until we could actually see the plans brought out on the table and we could participate in the process.

In part it was the rates, but as I mentioned the Las Vegas area has one of the lowest rates in the country. Out of 360 investor-owned utilities, Las Vegas has approximately the 20th lowest rate in the United States. Its rates are very low.

Mr. Snell: In costing conservation, do you require the utilities to give any advantage to conservation, such as in the northwest where they get a 10 per cent cost discount?

Mr. Wellenhoff: We do not give any of those considerations. We believe they should be put on an exactly equal economic footing. We look at it only from a standpoint of economics. As I said, the criterion for the utility is minimization of the present work of revenue requirements over time. We think there is enough demand-side conservation load management, or what have you, that is less expensive than the supply side so that you do not have to give an advantage to conservation that way. I know there are arguments that certainly could be made for giving conservation an advantage because there is no need for transmission, etc., but we really do not want to even argue about those things.

Mr. Snell: How do you determine things like the discount rate? I am just curious as to who determines that because that obviously affects the length of time of the present value. Does the utility do that or do you do that?

Mr. Wellenhoff: The utilities forecast all of the inputs. All the data inputs, they forecast. Although, I just got through reviewing, just last week, the financial inputs for the southern Nevada utility and we had some critiques about it. It had certain things for the inflation rate that we did not think were correct and we showed it over time over the last five years what inflation was, etc., and it agreed with us. So, it is a matter of a consensus process, but they start the process by providing the initial input data.

Mr. Snell: I will just close up here. I do not mean to be taking a lot of your time. I am just contrasting the Office of Consumer Advocate in Nevada as opposed to the Northwest Power Planning Council which does a lot of independent analysis and has a fair staff. You instead would be like cross-examiners or hired guns or an all-star team that just reviews the plans as opposed to creating input to their plans. It is quite a different function.

Mr. Wellinghoff: That is correct. We do not want to create the plan. We do not think that it is a proper function for us. We do not think it is a proper function for government. We do think it is a proper function for government, however, to be able not only to review the plan, but review it adequately and to be able to bring in outside consultants to do a critique in an open forum of some kind, either in a workshop or, if necessary, in a hearing forum where we do that.

Mr. Charlton: You are now getting into the next question that I had anyway, so perhaps I can pick it up here. You said earlier, and you have repeated it now, that it is the view in Nevada that the utility should do the plan. You have also told us that the model or method by which the utility has to analyse the various options is set for the utility.

Mr. Wellinghoff: In a generic sense, yes.

Mr. Charlton: Okay. You also have described for us this workshop process between plan submissions where all of the interested parties try and hammer out their differences. If you did not have those two additions to this process, the agreed modelling and the ongoing consultation and sometimes heated debate, would you be satisfied that the utility was doing all of the planning?

Mr. Wellinghoff: No, I would not. Even though you are going to let them do the playing, number one, you need to let them have some ground rules they are going to play by; and number two, you have to have some way to make sure they are playing by the ground rules, in essence; and those are the two things we are doing.

Mr. Charlton: Right. So, that is an important addition to what I think you were getting at, Brent, in the context of the overall process.

Just one last question; it is just a question for clarification: You said the commission, being the public service commission, either accepts or rejects the plan.

Mr. Wellinghoff: That is correct.

Mr. Charlton: I presume that includes amending the plan.

Mr. Wellinghoff: Yes.

Mr. Charlton: That is, it does not say: "No, we do not like this plan. Go back and start over."

Mr. Wellinghoff: No. It indicates to the utility what parts of the plan are deficient and how to correct deficiencies.

The Vice-Chairman: I just have a brief supplementary on something you mentioned earlier, more for curiosity than anything else, frankly. You talked about one of the utilities. I think you said the northern utility had just had their bond rating upgraded by the rating agency.

Mr. Wellinghoff: The southern utility did.

The Vice-Chairman: That is the Vegas one. Do you recall from what to what?

Mr. Wellinghoff: That is a good question. I think it is B-double-A or A. They are now A-rated, I believe.

Mr. Charlton: They are now A?

Mr. Wellinghoff: Yes.

The Vice-Chairman: So they must have been B or B-plus.

Mr. Wellinghoff: I think they were B-double-A.

The Vice-Chairman: Okay.

The only other name I have is Mr. Shymko's, but he is not here at the moment. Is there anybody else?

Mr. Moore: I understand the power rates in Nevada that you mentioned are flat rates as opposed to declining block rates. Are all the rates in Nevada flat rates?

Mr. Wellinghoff: That is correct. The residential rates are flat rates. We used to have declining block rates quite a few years ago. That was when I used to work for the public service commission in 1973. Since about 1975, all of the residential rates have been flat rates and the commercial rates are all flat rates as well, but there is a demand component as well as an energy component to the commercial rates. The residential rates have just a flat energy component to the rate.

3:20 p.m.

Mr. Moore: Can you make any comments about declining block rates?

Mr. Wellinghoff: You can make an argument against the client block rates in that they do not promote the most efficient use of your resources. You can also make the argument for inverted rates, where rates increase with price. We have not gone that far in Nevada.

We are looking at rate structures in Nevada. We are looking at the step beyond all that, beyond declining block, inverted rates, flat rates or time-of-use rates. We have gone to time-of-use rates for the large commercial or industrial customers. I think that is appropriate. We are looking at the potential of going to a time-of-use rate for the small commercial and residential as well, although you have to be very careful in a residential area because time-of-use rates to residential customers can have some severe economic impacts that you do not want to encounter.

Mr. Moore: I am also interested in your office itself, the consumer advocacy office. I guess the public service commission also acts in the best interests of the customers. Is it there to do that? How does it interact?

Mr. Wellinghoff: The public service commission has more of a balancing act to follow. It is appointed by the governor. He is a separate executive from my superior, the Attorney General. The Attorney General and the governor are both elected in the state of Nevada.

The public service commission does act more as a judge in the true sense of an arbiter deciding the evidence that comes in as presented by the utility and by our office. There is a separate staff in the public service commission

that also presents evidence. They present evidence more from a procedural, precedential viewpoint of what has happened in the past and what is good procedure and precedent for the public service commission to follow.

Our office, on the other hand, is specifically statutorily given the responsibility to be an advocate for the ratepayers. We advocate that interest to the ratepayers to its fullest extent.

Mr. Moore: I have one last question. How do you find out what the ratepayers want?

Mr. Wellinghoff: That is a very good question. We have continual contact with a number of ratepayer groups. I do not have an official advisory committee, as a lot of consumer advocates have. To give you some background, there are about 35 to 40 consumer advocate offices in the 50 states in the United States. There are such offices as mine in the majority of states.

A number of those have institutionalized consumer advisory panels. I do not. I more or less informally go to consumer groups, such as the mobile home owners league. About 50,000 to 60,000 people live in the state of Nevada live in mobile homes. I go to the senior citizens' groups. I go to the groups where people are organized and I discuss with them the issues and try to get feedback from them on more or less an informal basis.

The Vice-Chairman: Is there anything further? If not, thank you very much, Mr. Wellinghoff. I know that locals do not bet, but if you do, good luck.

Mr. Wellinghoff: Thank you.

Mr. Chairman: Our next witness today is Paul Markowitz. Welcome.

PUBLIC CITIZEN

Mr. Markowitz: I do not know whether this is appropriate, but do you people want to stand up and stretch for a minute before we do the marathon here?

I want to start by making sure that everyone has a copy of my testimony. I appreciate the opportunity to be here today. I want to give you a little bit of background on my organization, the Public Citizen, my personal background, and what I hope my testimony has to offer for Ontario.

Public Citizen is a consumer advocate group in Washington with about 50,000 members across the country. Critical Mass Energy Project is a subgroup of Public Citizen where the energy research and advocacy is done. We have been in existence since 1974. We work to promote safe energy and affordable energy alternatives.

Mr. Brandt: Excuse me. What is the name of your group? Is it Public Citizen?

Mr. Markowitz: It is Public Citizen. We were actually founded by Ralph Nader back in 1971. We are one of his many groups.

About a year ago we launched what we call a least-cost energy initiative which is basically designed to provide assistance to regulatory commissions, state agencies, researchers and citizen groups, primarily in the US, on how to implement least-cost strategies.

We are doing this in two ways. One is to promote the development of studies which document the potential for least-cost alternatives. Essentially, this means going out there and quantifying, for instance, how much conservation is available and how to undertake those studies and bring people together.

The other one is to develop legislation and regulations that the state commissions can adopt to ensure that the utilities are actually implementing least-cost strategies.

As far as our background is concerned, for a lot of the information that we have, we were involved with US Congresswoman Claudine Schneider's office. We helped develop a survey of all 50 public service commissions in the country on their least-cost activities. After compiling that survey, which is basically raw data, we turned out this report here--you do not have copies in front of you but I have a few here if you would like them--called Least-cost Electrical Planning: Is There Really a State Movement. It is basically one in which we analyse the survey results and give a status report of where states are as far as progress is concerned, not so much in terms of implementation but to determine what types of legislation or regulations they have on the books.

The results, which might be surprising to this committee, are--and I know you always look to the US for leadership--that relatively few states have comprehensive least-cost planning regulations in place. We have about eight states that have legislation and regulations on the books to do least-cost. The other ones, as I go through the model here, have some components that are missing. But I still think, from those states, the ones that have been mentioned before--California, Wisconsin, Florida, and Nevada--have a lot of lessons that are applicable here in Ontario.

Last November we presented the findings of this study to the NARUC conservation committee. NARUC is the National Association of Regulatory Utility Commissioners. It has a standing committee on energy conservation that has recently become increasingly active. It was responsible for putting forth the proposal, with which I am sure many of you are familiar, officially endorsing least-cost energy planning and encouraging all electrical utilities in the US to adopt least-cost resource plants.

That is enough of my own background. As far as the written text we have prepared is concerned, we are currently working directly mostly with state commissions and state agencies, although we are a consumer group. We also work with citizens' groups but our primary focus is to work with decision-makers and provide them with information and tools to adopt least-cost planning.

For instance, we are working in Texas right now with the public utility commission and with the office of People Council, which is similar to the consumer advocate's office in Nevada, on a petition for rulemaking. Basically, it has some pretty decent least-cost legislation in the state. We will be petitioning the PUC to change its rules to make sure that the utilities are required to follow least-cost plans. There is a difference between just following load forecasts or resource forecasts and doing least-cost plans. I will get into that.

I want to deal with a little of what I hope to cover here today. Primarily, I am going to go through the executive summary. I hope you will read the rest of the testimony on your own time. I would like to leave most of the time for questions.

I am coming from two points of view today. One is as a consumer advocate representing the consumer perspective. The other results from our work with the commissions and the impetus behind the move towards least-cost and some of the lessons that have been learned by the commissions and how they are approaching least-cost now in the US.

I am going to start off talking about a model least-cost energy policy. As you will note, much will be similar to what Jon Wellinghoff outlined here, with a few variations.

3:30 p.m.

I will talk about a few states and the different approaches the states have taken. I think this will be a indicator that, while we are outlining a model here , as in any model, you have to adapt it to your own particular needs. As we go through some of the states, you will see they have taken a different approach to least-cost planning. I am going to wrap up with some lessons that I think are applicable here.

Let me start off with a model of least-cost planning. I can probably go through some of this rather quickly because Jon covered it pretty well.

As you see, we have three major components, planning, evaluation and enforcement. The first stage, under planning, falls primarily upon the utility's shoulders. Each utility should submit a least-cost resource plan. That plan should include a demand forecast based on end-use and econometric analyses and should provide three to four electrical demand scenarios.

It also includes assessments of demand options and supply options. When you are talking about assessment of demand options, it is not only assessing the economic potential for conservation investments and load management investments, but it also specifies what programs the utility intends to implement to achieve that potential. It does not have to be in the next year, but perhaps over a 10-year period, specifying, "These are the programs we will be implementing."

I emphasize the importance of doing an assessment of the economic potential because in the US we have seen that utilities implement conservation programs on an ad hoc basis. They say, "We will do this weatherization program or perhaps we will do this information program," and it is not necessarily targeted towards the most cost-effective conservation measures.

We emphasize undertaking an assessment of the conservation potential. You look at all the economic classes, residential, industrial, commercial, and at all the different end uses in those sectors--for instance, in residential, you look at refrigeration, space heating, water heating--and then look at the different measures that can be implemented to increase the efficiency with each of those uses, prioritizing the most cost-effective ones, then the utility develops programs that are designed to implement the most cost-effective ones first. This makes sense intuitively although they are not necessarily doing it. I emphasize the assessment of demand-side options, but also targeting programs that will implement the most cost-effective ones.

The next component is integration of all resource options into a least-cost resource mix, basically asking what the options are and implementing those that are cheapest first until we meet our power requirement. That is easier said than done. While it is fair to say that perhaps the majority of US utilities now have some demand-side programs,

whether it is low-interest loans for home weatherization or efficiency rebates, and are doing some conservation incentive programs, very few, if any, are fully integrating demand-side and supply-side resource options. It is really essential for the public utility commissions to outline and define how they can do that. I will get into the role of the commissions a little more and why they are so important in bringing about a least-cost strategy.

Finally, the last thing I mention here is a two-year implementation plan. This specifies exactly the resources in which the utility intends to invest over the upcoming two-year period.

The next section is evaluation. This is primarily the responsibility of the state. In the US, it is primarily the public utility commissions though it often falls upon state energy offices. This varies. In some states they even have councils that are responsible for the evaluation of utility plans.

The proposed utility plans are carefully evaluated by the regulatory commission and the public. This requires that the commissions or the state (1) establish specific guidelines for utility plans; (2) develop a state-wide electrical energy plan. I may differ a little bit with Mr. Wellinghoff here. A lot of states have actually required either their public utility commission or their state energy office--in California, it is the energy commission--to develop a least-cost energy plan for the state. It requires more resources by the state to undertake this type of study versus the approach that is used in Nevada where the utility submits a resource plan and then the consumer advocates, citizens' groups and the commission critique that plan according to specified guidelines. If they find it deficient, they send it back to the utility to correct.

I would say the state electrical plan, if the resources are available, offers the advantage of a standard by which utility assessments of demand-side options and cogeneration potential can be evaluated. For instance, if the utility comes in with its resource plan and says, "We think 100 megawatts of conservation can be captured over the next five years," it is one thing for the state to say: "We do not think you looked at this; we do not think you looked at that. Go back and to it again." It is another for the state to say: "We have conducted our plan and we found there are 500 megawatts out there. We have used some of your end-use analyses; we have applied efficient technologies and we found there are 500 out there. We want you to go back and at least achieve X, or go back and start to identify these areas that we found in our plans." I think there are some advantages to the state actually developing an electric plan of its own.

A final thing, and I would particularly emphasize this from a consumer's point of view, is to establish special provisions for public participation in the resource planning process. I sat in on the session this morning, heard a lot of talk, and I know everyone here is very concerned about making sure the public has adequate provisions and input. It is another thing to ask how that is going to be accomplished. A lot of people have a lot of different ideas on that. The Nevada model, with the workshops where the consumer--the public--has input at each stage of the planning process and is working with the utilities to express concerns, is probably an optimal way to go. You are starting at the very beginning, unlike the situation where the utility develops its plan and then the public has a chance to critique it, such as in the Northwest. In Nevada, they have the opportunity, as the plan is being developed and before it has been formulated, for the public to have avenues for participation, whether it be a workshop or public hearings. I would say this is very important.

Beyond that, I think it is important for the public to have some type of official role in the actual review process, or the plans, after they are developed, in that public hearings can be held. Citizen intervenor groups, such as in the US, often have funding provisions so that they can call in expert witnesses. The utility has all the expert witnesses it needs down there because it can just tack them on to the rate base. If a citizens' group wants to call people in, it has to come out of its own pockets. I think it is important to have some type of provision for funding intervenor groups so that they can take the time to prepare adequate testimony and bring in experts.

The situation might be a little different where you have a public utility and you are hiring public interveners but some type of provision during the process of developing the plan, where the public has adequate mechanisms for input into the planning process, is crucial.

I will spend a little more time on the last one, the enforcement mechanism. I think it is fine for the utility to develop the plans; then it is fine for the state to evaluate whether the plans are adequate and whether they have looked at conservation or cogeneration potential or their load forecasts adequately. But unless you have some type of mechanism there to ensure that the utility is going to follow that least-cost investment pattern, all your work is for naught.

Over the past 10 years, experience in the US has shown that, left on their own, utilities are not going to follow what the public, the consumer, would necessarily consider a least-cost strategy. The utilities often do not see the financial benefit of investing in conservation programs. They often look at it as a direct conflict with their idea of more sales and more revenue. In order to make that transition, there are some utilities down there, specifically utilities in California and the Northwest, that are starting to see that fewer sales does not necessarily mean less revenue. You can still make a profit and you can increase your profit through conservation. The idea is not more; it is to decrease your expenses faster than you decrease how much revenue you are bringing in. The bottom line is you are going to increase your profits.

3:40 p.m.

What a lot of utilities are seeing down there is that large plants with long lead times and tied-up capital, plants that are overbudgeted, often yield a poor return for the utility.

I emphasize the enforcement mechanism of the public utility commission. Until the early 1970s or 1973, the utilities were in a building stage. We are talking about a transition in a large industry and it takes time for that transition to occur, where we bring about least-cost strategies that look at small power production and conservation load management. It is crucial to have the commission or some type of government role in ensuring those investments are made. Otherwise, you will have a lot of the institutional inertia we have seen down in the United States, where the utilities have the same incentives to keep going about business as they have in the past.

As far as enforcement mechanisms, one is that all utility investments must be consistent with the resource plans. In other words, the utility cannot go out and make an investment in a power plant or a transmission line unless the investment has been identified as part of the least-cost resource plan adopted by the public utility commission. The commission says, "This is what you have outlined for the resources you need for meeting future demand, these

are the least-cost resources--X amount from conservation, X amount for cogeneration, etc.--and we think you have followed the methodology we have outlined here, the information guidelines we have set for you, and we concur that this is a least-cost plan."

Therefore, in the two years before the next plan is filed, the utility can only make those investments that have been identified as part of that least-cost plan. As Jon was saying before, this ensures the integration of the planning process and the utility investment process, which I think is crucial. You can have all the planning you want, but if it is only a paper plan and the utility can go out and make those investments, it does not do you any good.

Next is the power plant licensing stage. Utilities have to file for a permit any time they want to undertake any major new construction, such as a power plant, and there are three requirements. First, that power plant must be part of the least-cost plan. Second, the utility has to establish firmly the need for that plant, i.e., the demand forecast it has outlined in its plans specify the need for X number of megawatts, and that need will be met through that plant. Third, the utility again has to justify that plant is the least-cost investment.

You have three stages, three checks, when the utility goes out and says it wants to build a power plant and the state says it has to file for a permit. In filing for that permit, the utility has to certify that the plant is part of its least-cost plan, that the plant is needed, that it conforms with the need the utility has outlined and that the plant is the least-cost means of meeting that plan.

This summarizes the model. Let me go into the approaches the states are using to implement these cost strategies. I think you will see there is a lot of variability. The Wisconsin Public Service Commission has taken an active role in developing a least-cost electrical plan of its own to evaluate the utility resource plans and to specify the changes the utilities must undertake in the development of those plans. The Florida Public Service Commission has established what we call a more performance-based approach. I will get into this a little more later.

We are seeing public service commissions move towards requiring utilities to meet certain goals. The utility's rate of return is determined by how well those goals are met. The main public utilities commissions, even though they have an integrated resource planning process, have relied heavily on avoided-cost rates to encourage small power production. In fact, Maine predicts that by 1988, 30 per cent of its power will be met by cogeneration and small power producers.

I want to go into a few of the lessons that are applicable to the Ontario situation. Probably the most crucial one is that the planning process offers a unique opportunity for regulators and the public to review proposed utility investments before those investments are actually made.

What we found 10 years ago, before public utility commissions required utilities to adopt least-cost plans or to file for permits, was that the only means the public utility commissions had for reviewing utility investments was during the rate-making process.

The utility would come in and say, "We just went out and invested in this power plant, and we want to get a return on our investment." If the power plant was way over budget, or if the need for that power could have been met

more cheaply, there was no recourse for the commission to say: "We are not going to allow that power plant in the rate base. Your stockholders are going to have to eat all these costs." In fact, a commission is reluctant to go ahead and shift all that burden to the stockholders. It is not fair to do that when there was no input by the regulators in evaluating whether these investments were the right way to go.

The planning process offers an avenue where the public and the public utility commissions can have input into the process and evaluate the least-cost ways of meeting future demand, before the investments are made. In another sense we find the utilities themselves looking at this as advantageous. A lot of them have been stung in recent years because commissions are using 20-20 hindsight and disallowing substantial portions from the rate base. The most significant one was the 40 per cent the Kansas commission disallowed. That hurts. The utilities would rather say: "Let us get some type of agreement. We do not want to go out there and invest in any new power plant unless everybody thinks it is a good way to go."

Commission authority to set rates is a necessary condition but is not sufficient to ensure least-cost investments, because it happens after the fact. The planning process assures an avenue for input before the investments are made.

Legislators should be aware of the relationship between regulators of the utility planning process and the level of resources needed to review adequately utility plans and other filings. Should government be actively involved in developing a separate resource plan? Should it just go in and critique utility plans? Should it have a planning process at all--should the state just do its own thing, make its investments in power plants and then invest all its time and energy in reviewing the rate increases or types of rate requests the utilities are proposing?

Illinois just passed very comprehensive least-cost legislation requiring utilities to file integrated resource plans. It hired one person to deal with the whole least-cost planning process and with utility plans. It is not fair for the commission to increase heavily its responsibilities without also increasing the resources it has to evaluate utility plans adequately.

In another sense, it can actually weaken the consumers' point of view. If you increase the responsibilities and therefore, let us say, have a planning process where there is some type of sharing among the commissions, the public and the utilities--go ahead and prove a power plant but the commission does not have the resources to review utility plans to say they are adequate or to see if they are up to the guidelines that have been set--it is going to be harder later on to come back and say, "That was a bad investment." You need the resources in the early stages to say, "Let us evaluate whether what the utility is proposing is a good investment."

3:50 p.m.

The level of resources that the state needs to evaluate utility plans, power plant permits and licensing permits should be directly proportional to the authority that has been given to chart a least-cost future for the state.

The third point I want to make is legislators need to balance the regulator's involvement in the resource planning process with provisions that ensure that the utilities will develop the in-house capabilities to plan for demand-side alternatives and alternative resources.

We have seen some states where the public service commission or state energy office has taken a heavy role in requiring utilities to make certain investments. If the utility does not have an incentive to actually implement that program, it is not going to do a very good job of it.

On the other side, if the utilities are given too much leeway and the state does not have enough oversight in determining what are the most cost-effective programs to implement and what is the cost-effective potential for conservation, we have seen a lot of utilities fall short of that potential. There needs to be a balance where the state is involved in laying out the guidelines, specifying the types of methodologies, perhaps even setting some types or targets or goals that it would like the utility to achieve, and encouraging the utility to develop the in-house capabilities to plan for developed innovative conservation programs, etc.

The fourth point is that legislators need to consider how the current regulatory framework sends financial signals which encourage utilities to favour one resource option over another and then adopt changes to correct any imbalance.

For instance, profit in the US for investor-owned utilities is often figured on their total capital investments. Therefore the utilities often have an incentive to invest in capital-intensive plant and equipment. These types of incentives need to be modified if utilities are to move toward less capital-intensive investments such as conservation.

For instance, there is the idea of encouraging performance-based rates. If you said to the utility, "We would like you to achieve X amount of conservation in the next year," and if the utility achieves it or goes over it, it receives a certain rate of return on its investments. If it goes under it, then it is penalized and gets a lower rate of return. This is just one type of performance-based incentive that they can set up.

In summary, a comprehensive least-cost planning process can assure that: (1) lowest-cost resources are going to be implemented and consequently electric rates will be as low as possible; (2) electric utilities are a cannibal to the regulators and the public for their investment decisions; (3) noneconomic criteria are incorporated in the decision-making process. By this I mean you can have provisions, such as the environmental benefits that accrue from conservation, and others such as improvements to local economies because conservation and locally available resources are more labour intensive. These can be incorporated and special provisions can be put in the planning process to account for them; (4) the public has substantial input in the resource planning process. You can set up a least-cost planning process which assures that.

I am open for questions. Feel free to ask questions as to how some of the ideas I have thrown out here might be applicable to Ontario's situation.

Mr. Shynko: I go back to my earlier question of public input. I ask you for further comments on some of the models that may be available. Unfortunately, I was not here and I had some questions to ask of Mr. Jon Wellington of the Nevada Office of Consumer Advocate. Perhaps you could answer some of these questions.

By reading the description of the office, it gives me the impression he is some kind of publicly appointed ombudsman who is monitoring the private utilities. Is that the right interpretation?

Mr. Markowitz: Is Jon here or is he gone? I hate to answer for him. I do not know if ombudsman would be the most accurate description. They are certainly there. They are the state representative of consumers, primarily residential consumers.

Mr. Shynko: Appointed by the state?

Mr. Markowitz: They are appointed by the state and funded by a fixed percentage of utility rates to represent residential consumers. They have standing at all utility rate hearings, or any type of utility proceedings.

Mr. Shynko: The only relationship I can see of any office in Ontario would be an ombudsman exclusively dealing with that sort of government public agency, if I may use it. Interestingly, the Ontario Ombudsman has no jurisdiction over Ontario Hydro, nor does he over municipalities and boards of education. We really do not have--except for maybe the Ontario Energy Board, which can only recommend but does not have any clout per se as supposedly this committee would have--

The only body that I can see that has a major nonstatutory framework --in other words it is not a statutory framework or a legislated input--is AMPCO, the Association of the Major Power Consumers of Ontario. It consumes 86 per cent of hydro according to their pamphlet, which I have seen. It is interesting that they indicate that they officially represent 86 per cent of the consumers.

They meet regularly with Hydro officials to review rates, to discuss common interests and to voice concerns, supposedly not by statute, not by regulation. What concerns me is that remaining 14 per cent of the public who have no official or unofficial framework whatsoever as you have described the citizens' utility boards and the consumer advocate, such as in Nevada, in the two models. I would like you to explain to me whether the state utility consumer advocates exist only where you have a public utility, such as the Tennessee Valley Authority and so on, or do they exist anywhere? Can they be set up anywhere?

Mr. Markowitz: The public utility commissions regulate investor-run utilities.

Mr. Shynko: But I am talking about the consumer advocate.

Mr. Markowitz: Publicly-owned utilities are not regulated by the state commissions. The state utility consumer advocates represent the residential consumers before public utility commissions, primarily involving investor-owned utilities.

Mr. Shynko: It would normally be in a state where you have private utility companies. You will not find a public consumer advocate in a state where you have something like Ontario Hydro, a public utility.

Mr. Markowitz: Probably in every state except one or perhaps two--Tennessee and Nebraska where there is mostly public power; a good percentage of the electricity is provided by investor-owned utilities.

Mr. Shynko: Exactly, by the private sector.

Mr. Markowitz: I think the difference between--what was the name of the group that represents 86 per cent of your--

Mr. Shynko: AMPCO. They are industrial consumers.

Mr. Markowitz: --is that it is an informal process. They can talk to Ontario Hydro but what they have to say is not necessarily binding or it does not necessarily carry that weight of law. The consumer advocates have standing at the regulatory proceedings and say, "We represent this group; these are our concerns." The commissions have to weigh that as evidence, just as they weigh the utility's evidence for a rate increase. They have to weigh that as part of the hearing process.

Mr. Shynko: The consumer advocate, such as the Nevada one, would represent all consumers, including industrial, commercial and residential; if I may use the term, the "average homeowner" consumer?

Mr. Markowitz: It depends. I am pretty sure that most consumer advocates represent residential consumers.

Mr. Shynko: I see; not the industrial?

Mr. Markowitz: Again, the policies that they advocate are beneficial to all ratepayers. Jon is out here advocating for least-cost resource planning. He is not just advocating least cost for the residential. What is least cost for the residential is, in most cases--

Mr. Charlton: Except that a consumer advocate who is representing primarily the residential sector may, for example, in a state or a province like ours, be advocating against declining block structure which would have an adverse effect on the commercial-industrial sector.

Mr. Markowitz: Then you get into some of the issues, for example, of now you apportion the costs when a new plant is coming on line. How much should the industrial consumers have to bear; how much should the residential consumers have to bear? Often, the consumer advocates are going to be advocating the residential position.

4 p.m.

Mr. Shynko: Are the citizen utility boards funded by voluntary contributions? Can you explain where it says, "Voluntary contributions from ratepayers through access to utility bills"? I am confused. Do they have the special privilege of gathering the contribution from the bill the consumer pays?

Mr. Markowitz: Up until very recently it was either passed into law by mandate or if the public utility commission approved that the CUB be allowed an insert in the utilities bill. When the utility sends out its monthly bills, the CUB is allowed an insert that says: "Would you like to have public representation in the hearings process, in the rate proceedings? Join CUB." At that point people can make a voluntary contribution or checkoff and send in a cheque to CUB.

Unfortunately, a recent Supreme Court ruling cast some serious doubt on requiring utilities to include in their bills a staffer to which they are primarily opposed. Some first amendment rights were being violated. That does not necessarily kill that funding mechanism; it means the staffers might have to be a bit more moderate. You cannot have the "Your utility is raising electric rates sky high--join CUB" type of thing, but something a little more middle of the road. That is a means for the consumers to fund an intervener

directly. Where the CUBs exist in about three or four states, they have intervener status.

Mr. Shynko: We do not have anything similar to that except for the New Democratic Party, which has the write-off of unions dues, and even that is being challenged, I hear. The party being the representative of the public may be construed as being similar to this.

Energy Probe is a public consumer advocacy organization. It is not funded by the government. If you are familiar with Energy Probe, you can imagine it having access to this type of process of utility bills.

Mr. Markowitz: The real benefit of a CUB is that it is democratically elected. The people who run the organization and who represent it before the public utility commission are nominated or voted on and elected by people who are members of that CUB. It is direct participation by the customers.

Mr. Shynko: Is Ralph Nader your organization's citizen? Are you something similar to a CUB?

Mr. Markowitz: Public Citizen is mostly a consumer advocacy organization.

Mr. Shynko: Universally for all things.

Mr. Markowitz: Critical Mass is the energy arm of that. We mostly provide such things as information and technical assistance.

Mr. Shynko: Critical Mass is not funded through any public body. It is a voluntary nonprofit organization.

Mr. Markowitz: Yes. Critical Mass is a nonprofit organization. We have 50,000 members. That is where we get most of our support.

Mr. Shynko: You are very supportive of a funding mechanism to allow for public representation. You have no philosophical problems with this because you have private utilities. We have a philosophical problem because our utility is public.

Mr. Haggerty: Socialist.

Mr. Shynko: No. I am trying to say that you pay the shareholders to criticize themselves, so to speak.

Mr. Markowitz: I understand your dilemma. It has been my understanding that Ontario Hydro does not necessarily represent all the interests of the province. The CUBs and such mechanisms have been developed in response to investor-owned utilities in the US where in the past the investor-owned utilities were making all the investment decisions and the ratepayers were footing the bill. We are now saying that if the ratepayers have to foot the bill, we want some input into the investment process, into decisions that are being made, so when it comes down to paying the bill, we made some decisions and they reflected the least-cost way to go.

In Ontario, I understand it is a little different. There should be an official mechanism or provision--I cannot say exactly what it should be--so the input of the public is not just: "Okay, thank you very much for showing up

for the hearing. It has been nice to see you. Have a good day." Then Ontario Hydro or whoever goes on its merry way. You need a mechanism to ensure that public representation is heard, not just, "We will take it into consideration and then do what we want," but it is weighed. Like the evidence from the utility and any other evidence, the intervener's evidence is weighed.

Mr. Chariton: Perhaps we could look at Ontario's context in the sense that we have a double reason for considering public input: we do not have a private investor-owned utility, but a publicly owned utility. We have a need for public input to protect ratepayers; we also have a need for public input, so the shareholders of the corporation can have a say in the investment policy of the corporation. We have a double reason, not less reason than privately owned utilities.

Mr. Markowitz: Right.

Mr. Shynko: I support that; I agree with that. The last question I have concerns the Long Island Power Authority Act, which allows for public input in the process of developing the plan. We have the input when the plan has been prepared by Hydro, has gone through the Ontario Municipal Board and has been submitted as a fait accompli. Then you have four months for public input.

Mr. Markowitz: Right.

Mr. Shynko: As reflected in the Long Island Power Authority Act, is New York one of the unique states where public input is during the entire stage of the development of the plan of the authority?

Mr. Markowitz: I have not read through the act.

Mr. Haggerty: When did the act come into force? Was it before the utilities started the program to build all the nuclear plants and then shut them down? The cost got too high and industries flew out of there and went to some other places. There must have been concern.

Mr. Markowitz: I think it was introduced this past legislative session, to take over Long Island Lighting.

Mr. Shynko: That is in the last three pages of the document you submitted.

Mr. Markowitz: Right.

Mr. Shynko: Under "Public Involvement during the Development of the Plan," there are review sections through the stages.

Mr. Markowitz: I should have pointed out that the last four pages of the testimony, these amendments, are what we call model legislative language. The amendments were developed by my colleague.

Mr. Shynko: These are just submissions. They are for amendment.

Mr. Markowitz: Right. This is a public authority, similar to Ontario Hydro. If this committee is considering drafting any amendments, I thought some of this language concerning what the utility plan should include and how it should be developed might be adapted or used.

Mr. Shynko: This is only a proposal for an amendment.

Mr. Markowitz: Right. My understanding is that it has been included or attached to the bill itself, but I am not exactly sure of the status.

Mr. Haggerty: How many utilities have gone into receivership at Long Island? I thought a number of them were proposing to construct nuclear plants. I guess they have gone under.

Mr. Markowitz: Do you mean receivership because of bankruptcy?

Mr. Haggerty: Bankruptcy. They could not complete the projects.

Mr. Markowitz: The primary utility involved with Shoreham is Long Island Lighting. It has not gone into receivership, but has come as close as you can get. The public service commission is basically giving the company emergency rate relief to keep it going. Now Shoreham is complete; in fact, it is at five per cent power. I do not know how familiar you are, but currently the big issue is emergency evacuation. How do you get two million people across four bridges leading out of--

Mr. Haggerty: Can none of them walk on water?

Mr. Markowitz: I do not know. It is a tricky proposition.

Mr. Shynko: Can I conclude my remarks with a statement, Mr. Chairman? I am only a substitute member of this committee.

Mr. Chairman: We welcome your input.

Mr. Shynko: I suggest that in the final recommendations of this committee we look at these models in terms of allowing for some practical recommendations for public input in the process. I am confident that you, Mr. Chairman, and the committee members will focus your attention on this very crucial and important aspect for the shareholders of Hydro.

Mr. Chairman: Thank you, Mr. Shynko.

4:10 p.m.

Mr. Charlton: We appreciate your comments, Mr. Shynko, since you likely will not be here when we are making the decision.

I have a couple of questions. You had one major area of disagreement with Mr. Wellinghoff, this question of independent research and data. I tend to agree with you that the ability of any body, whether it is a state body, a public advocate or a public group, to participate in a review of a proposal is limited by its access to information that may confirm or differ from that developed by the utilities. I also tend to agree with you about the usefulness of having some independent study done of proposals or approaches to programs.

On the other hand, some of what Mr. Wellinghoff said is also useful. It seems to me that to have no independent research is a disadvantage. On the other hand, to have two bodies, the utility and some independent body, running out and doing research separately and then coming back into a hearing where everything is at issue is not the most useful or efficient way to get at a consensus. It seems to me a good mix of independent research and the "workshop" approach to eliminating areas of disagreement is ultimately the

most efficient way to reduce the number of issues where there is disagreement when you get to that final review of the plan or proposal.

Mr. Markowitz: The problem Jon was pointing out was that in California the functions of setting rates and planning are placed with two different agencies. The California Energy Commission is responsible for planning and dictating certain programs to the utilities. The California Public Utilities Commission is responsible for the setting of rates. We have often found a lot of stuff falls between the cracks.

You have a different model in Wisconsin. The public service commission does both; it sets the rates, but it also has a separate planning department function. They have developed their own separate alternative electrical supply plan for the year 2000 and it is integrated within one agency. They have said, "Here is how much conservation we think is available; here is the potential for various other resource options," and that plan is used in evaluating utility resource plans. It is used in power plant licensing permits and in the setting of rates.

If your state is conducting its own electrical plan, I do not think it necessarily has to be that some things have to fall between the cracks. It depends how it is set up. You could even have it in two separate agencies as long as you have some mechanisms for ensuring that one hand knows what the other hand is doing.

Mr. Charlton: We have had extensive discussion here in this committee and again this morning. We do not have three-day hearings in Ontario; we have two-, three- and four-year hearings. I was getting at trying to find the best of both worlds by maximizing the public and advocate ability to adequately review the utility's proposals at the same time as having a process that would eliminate as many areas of contention as possible before you got to that hearing stage. Do you think that can work?

Mr. Markowitz: I think it can. You can minimize duplicating resources. How much sense does it make to have Ontario Hydro go out and invest millions of dollars in developing a least-cost resource plan and then having the Ministry of Energy go out and develop the same plan? In that case, it all comes from the Ontario government, the people of the province.

4:20 p.m.

You can set up specific guidelines, for instance, specific information and methodology requirements, that the utility has to meet. When you come back, you have an objective set of criteria and you can say: "Here is what we have laid out for you. Here is what you presented. Here is where it is deficient." In that regard, if you are going to leave a lot of the weight as far as critiquing utility plans is concerned on emphasizing how well they meet sets of criteria, you have to emphasize how well you are capable of calling in outside experts to critique that.

A lot of the burden falls upon your ability to say, "How well did you meet the guidelines that we set forth?" versus an independent capability, such as a lot of states have, that says, "We are going to evaluate the guidelines, but we have also done this independently and we see that, compared to what you have, you are falling short." It is an extra measure you can use. It can be done, but I think you have to be very specific about the guidelines you set out in the information requirements from the utility. Then you have to hold them to it when they come before you and say, "Here is what we have done."

Mr. Charlton: I guess most of the situations you have tried to deal with involve states in the United States where there are not only private, investor-owned utilities but also usually more than one utility. Our is a unique situation in that we have a single, publicly owned utility for the whole jurisdiction. Is it going to be a lot easier and more straightforward in both legislative and regulatory terms for us to deal with the situation we have than trying to master a multiple situation?

Mr. Markowitz: That is a tough question. Certainly, looking at one utility's resource plans and investment decisions versus looking at seven different resource plans is less work. I think you can focus your efforts. You are faced with a somewhat unique situation as far as my experience goes in that you have a government regulating a public utility. As I said before, municipal utilities in the US are self-regulated, but even a lot of the state utilities, such as the Power Authority of the State of New York, do not answer to anyone. The only time anybody has anything to say about their process is when they come before them for financing.

I do not know how to answer the question whether it would be easier. If things are consolidated, you can focus your efforts. You are working with one set of staff at Ontario Hydro that is responsible for planning, and there is the staff in the Ministry of Energy to whom you have assigned certain functions as far as evaluating Ontario Hydro's plans is concerned. They can deal directly with each other. You know who you are dealing with and you can focus your efforts. However, I do not have a way of comparing which one would be easier.

Mr. Chairman: Mr. Haggerty, do you have a question?

Mr. Haggerty: No. I have asked my question about the Long Island utility.

Mr. Moore: Following up on Mr. Charlton's questions about whether the state or the utility should do the plan, there seemed to be some discussion about this problem of dualism with both sides doing intensive planning. Is it not true that in some jurisdictions the official plan is the plan done by the state, and the utility plan is a pygmy by comparison? In a sense, there is a total inversion of the role.

Mr. Markowitz: In a sense; the weight of state-conducted plans varies. For instance, the Department of Energy in New Jersey just came out with a new plan that has the force of law behind it for every state agency. They basically have to conform to the policies that have been set forth in the plan. That includes the public utilities commission. They have to apply what the department of energy sets forth as far as performance-based standards are concerned. Other plans are there to be considered when the utility comes forth with its load forecast or a proposal for a new power plant. That is considered in the regulatory proceedings. You can have other ones that are purely recommendations; they do not even have to be considered. They are out there and these are the numbers you develop, but there is no formal consideration on it. You get various levels of how well the planning function works. In those states where it is just a recommendation, the utility plan is foremost.

4:20 p.m.

Mr. Moore: The model I was thinking of specifically is the Northwest Power Planning Council. Actually, we are having them come before us tomorrow morning. Perhaps you can make some very brief comments about its planning

function, as opposed to some of the others across the United States, to help put it in perspective for us.

Mr. Markowitz: With respect to sophistication regarding least cost, they are probably foremost in the field as regards the concept of how to integrate conservation programs. In looking at conservation programs just as you would any other resource, bringing them on line just as you would a power plant, prioritizing those and getting a least-cost resource mix, it is doing some of the best work in the country.

Mr. Moore: Excuse me. They are also interesting because essentially they regulate a federally owned public utility.

Mr. Markowitz: In a sense; the Northwest model is tricky because it is unique. There is no other situation like it in the US. You have a federal power authority, but you also have the power planning council, which essentially is composed of two people nominated by the governors of each state. The planning council has the planning function. It also has some teeth to it whereby it can penalize the Bonneville Power Administration for not following certain types of least-cost patterns. I do not want to get into it too much, because you are going to hear from them tomorrow.

It is difficult to draw the applicability of that type of planning council to other institutions in the country. With regard to the methodologies and models they are using, they are state of the art. I know Ontario Hydro has been working with them closely.

I did not really answer your question--

Mr. Moore: That is fine. Thank you very much.

Mr. Richmond: I am curious. You are probably aware from the material Mr. Snell sent you that Ontario has a significant nuclear generation program, both existing and committed, I will say, with the Darlington station. To what degree has the work of your group in advocating this least-cost strategy been associated with your, shall I say, antinuclear position? In the states that have adopted a least-cost strategy, how closely has that been associated with states that have faced problems in getting nuclear plants built?

Mr. Markowitz: When you adopt least-cost planning regulations that require the utility to file plans, etc., part of the deal that is struck when that legislation is passed is that the plants under construction are essentially grandfathered in. They are not subject to the least-cost provisions such as a power plant licensing permit. That is part of the problem.

We have also seen in the past decade I do not know how many plants--it varies anywhere from 100 to 180, in different stages of construction--that have been cancelled. A lot of that has been due to, first, decrease in demand--

Mr. Richmond: Are these of all types, thermal and nuclear?

Mr. Markowitz: Yes. Second, energy efficiency not only is decreasing the need for those plants but also is providing electricity essentially at a cheaper cost. Of course, the cost of those plants has escalated.

For instance, I mentioned the state of Texas. It currently has four nuclear power plants. The consumers in Texas will be essentially footing the bill. Two of those are located in the state; they are the Comanche Peak and

South Texas nuclear projects, which are in various stages of construction. There are two units at each, and they are somewhere between 50 and 95 per cent complete.

The argument we are making is that you cannot deny them a power plant licence because they are grandfathered in. You cannot say, "This plant does not meet your least-cost resource plan," because it was grandfathered in. However, you could say, "All right, given that you have spent this much money on your power plants and you have this much left to spend, we want you to assess how that demand, to which you are saying the completion of this plant is essential, could be met through other resource requirements."

This is a petition we are filing: "We want you to go out there and assess the cost-effective potential for cogeneration"--which is huge in Texas--"for conservation"--a study recently done said there would be 10,000 megawatts of conservation available in Texas by the year 2000, "cost-effective" meaning a cost of less than \$1,700 a kilowatt, which is actually low for new nuclear plants coming on line--"and other resources. We want you to go out there and assess it. Then when you come back and give us that information, we want you also to give us an update on how much that plant is going to cost to complete. We want you to evaluate it."

The commission cannot come back and say, "We are going to deny you a rating; we are going to deny you permission to go ahead and complete that plant." What it might say is, "You have identified that conservation and cogeneration can meet the need for that plant this much more cheaply than the cost of completing and operating it over the life of the plant."

The commission can rule, "If you want to complete the plant, go ahead; but we are going to let you know that if you want to recover its cost, it is going to be limited in the rate base to how much it would cost to provide that power from alternative and cheaper sources," which basically limits it to the least-cost source.

In a sense, that answers the question of how we tie it in. Even though Critical Mass was founded as an antinuclear organization focusing on safety considerations, I do not argue antinuclear, anticoal or whatever when I am talking with commissioners. We are talking about economic grounds and asking, "What is the cheapest way of providing electricity?" That is what we limit it to.

Mr. Chairman: Thank you, Mr. Markowitz.

Mr. Markowitz: It was a pleasure to be here.

The committee adjourned at 4:27 p.m.

CA2ΦN
XC 2
85N22

N-49

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

WEDNESDAY, APRIL 16, 1986

Morning Sitting

SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Ashe, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, R. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Polsinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitutions:

Brandt, A. S. (Sarnia PC) for Mr. Jackson
O'Connor, T. P. (Oakville PC) for Mr. Gordon

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy
Richmond, J., Research Officer, Legislative Research Service
Snell, B., Consultant; with Canada Consulting Group Inc.

Witnesses:

Individual Presentation:

Henningway, R., Consultant; Former Commissioner, Northwest Power Planning
Council

From Bonneville Power Administration:

Hickok, S. G., Assistant Administrator

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Wednesday, April 16, 1986

The committee met at 9:38 a.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: Members of the committee, this morning we have before us Roy Hemmingway, a former commissioner of the Northwest Power Planning Council. Mr. Hemmingway will be discussing in some detail the development of the Pacific Northwest Power Act and his experience with the council.

ROY HEMMINGWAY

Mr. Hemmingway: Mr. Chairman, members of the committee. I have worn four hats in government in the 10 years I had service in the Oregon state government. First, I served in the office of the governor and wrote conservation and other energy-related legislation. I then served in the Oregon public utility commissioner's office and had experience in the rate regulation end; that is similar to your Ontario Energy Board. I worked to lobby the Pacific Northwest Power Act in Congress for the four Northwest states and I have served for five years on the Northwest Power Planning Council. I declined to seek reappointment in January of this year, feeling that 10 years in this business was probably enough for anybody and it was time to try something else.

First, I would like to give a little background on the Pacific Northwest and the power act, then to talk about the requirements of the act as it applies to the power planning council and then to talk about the plan we have developed. If you like, I can go into more detail on that plan in the question period. I will not be talking about how that plan is executed by Bonneville and the utilities. The next witness, Mr. Hickok, from the Bonneville Power Administration, will be talking about the operational side. I will concentrate exclusively on the planning side.

The Northwest Power Planning Council in Bonneville serves four states, Idaho, Oregon, Washington and the western side of Montana in the Pacific Northwest. Geographically, it is a relatively isolated region of deserts with mountains surrounding it. Its population is close to that of Ontario, 8.4 million people. It has about 5,300 annual heating degree days which I understand is close to your average as well.

Installed generating capacity in the region, including federally owned, publicly owned and privately owned, is 41,000 megawatts. Hydro makes up the capacity side of that, the great bulk of 35,000 megawatts. In terms of total energy generated, about 70 per cent of the electric energy in the Pacific Northwest is generated by hydro, the rest by thermal. The capacity--the peaks are met very much by hydro. Very little of the peak capacity is in the thermal system.

Total consumption on average is about 15,000 megawatts of that 41,000 installed capacity. The residential sector makes up about one third of that consumption. The average household uses about 14,000 kilowatt-hours a year. Commercial and industrial irrigation sectors make up the rest. That 14,000

kilowatt-hours a year represents about a 50 per cent saturation of electric resistance heating in the Pacific Northwest. About 50 per cent of the houses use resistance heating.

I will provide a little background on how the system is broken up. It is different from yours. We have privately owned utilities and publicly owned utilities. The bulk of the retail delivery is through privately owned systems, about 7,100 megawatts. Publicly owned systems, primarily in the state of Washington, deliver 5,600 megawatts. Bonneville serves about 10 industrial customers directly. These are primarily aluminum reduction plants--very high consumers of electricity, very high load factor customers--that Bonneville serves directly.

There is quite a bit of diversity within the region. There are over 115 publicly owned utility systems, with a range in size that I will get to in a moment, and nine investor-owned utilities. By and large, the investor-owned utilities have a good deal of their own generation. Most of the publicly owned systems do not have their own generation and depend entirely upon the Bonneville Power Administration for their power supplies.

A handful of the publicly owned systems have their own generation, such as Seattle, which relies entirely on its own generation. The largest system in the Northwest is Pacific Power and Light and the smallest system is the city of Minidoka, Idaho, with only 55 customers. There is a great deal of diversity in the Northwest.

Residential retail electric rates in the region average US3.4 cents per kilowatt-hour. That ranges from about five cents on the high side to about one cent on the low side of the net rate, best utility, in the region.

I want to talk now about the Pacific Northwest Power Act and what it requires of the Northwest Power Planning Council and of the Bonneville Power Administration. First, I want to give you a little background as to why the act was passed in 1980 by Congress.

In the 1970s all the utilities in the Pacific Northwest were projecting that in the 1980s the Northwest would be in a deficit situation and we would have very substantial shortages into the 1980s. That has turned out not to be true, but it was the shared wisdom in the 1970s.

In the late 1970s new plants were very much stalemated in the public process, and it was an extremely frustrating period for utilities. Any plant they proposed was stalled in the regulatory process through protests and lawsuits, and very few new plants were actually built. A lot were proposed but very few were built.

Those that were built caused rates to go up quite a bit, particularly in the privately owned systems. Rates were sometimes rising at a rate of 25 per cent a year or greater within some utility systems. When you have a cheap hydro system and you begin adding thermal to it, the inevitable result is increased rates. There was a widespread public perception that a new energy policy in the region was needed and that there was too much reliance on coal and nuclear plants for meeting the Northwest energy future. A public movement was beginning that affirmed we needed to move more into conservation and small renewables.

All these factors led to a low level of public confidence in utilities. Those opinion polls that were taken showed the utilities came low on the scale

of institutions that were to be trusted. Utilities were looking for an opportunity to break from the past, to enter a new era where they could have better relations with their customers.

Finally, the dams on the Columbia River, which had been the great supplier of power for the Pacific Northwest, had a terrible effect on the dramatic, storied runs of salmon and steelhead in the Columbia River. The dams were not the only cause, but they were a very significant cause. Any time the Congress was going to deal with the Northwest energy picture, it was almost certainly going to deal with trying to restore the fish as well.

Mr. Haggerty: How many nuclear plants are in your grid?

Mr. Hemmingway: In our grid right now there are two. Originally something like a dozen were planned.

Mr. Haggerty: There were a dozen planned?

Mr. Hemmingway: Yes. There are actually three; one defence reactor that produces electricity is operating as well.

Mr. Haggerty: The other nine are mothballed?

Mr. Hemmingway: Two are mothballed and the rest either did not get off the ground or were terminated. In the Northwest there has been about US\$7 billion spent on nuclear capacity that is either mothballed or in terminated plans.

Mr. Haggerty: What was the reason for terminating? Was there no need for them?

Mr. Hemmingway: The factors were need, the rising cost of nuclear compared with alternative generation and the regulatory difficulties the utility was having in getting the plants approved.

The Pacific Northwest Power Act made four basic changes in the law. It greatly expanded the authority of the Bonneville Power Administration. Previously, Bonneville had authority only to market or sell power from the dams and a handful of other thermal plants. It acquired authority essentially to become the regional power wholesaler in the region, similar to the role Ontario Hydro plays, but Bonneville previously did not play that role. The thought under the regional act was that most utilities would put all their future load growth upon Bonneville, and Bonneville would then develop the future power supplies through acquisition of power plants and through implementation of conservation and renewal-of-resource programs. Bonneville then would have a greatly expanded role as a power wholesaler.

9:50 a.m.

The power act created a regional electrical energy policy, putting conservation and renewables as a higher priority than conventional thermal plants. Probably more important, it mandated a least-cost strategy for the Pacific Northwest in general and for Bonneville in particular.

It mandated a fish and wildlife restoration effort on the Columbia River. I will not be spending any time in my presentation today on that program, but it should be mentioned that the policy the Congress put here was not one of trying to balance fish and wildlife against power. The mandate is

that the fish and wildlife must be restored to the extent they were damaged by the dams. The only cap on that is if that restoration effort renders the power system uneconomical and inefficient. It is a dramatic change in policy.

Finally, the Pacific Northwest Power Act created the Northwest Power Planning Council, which was formed in 1981.

Mr. Cureatz: Has anything happened on a practical basis for the restoration of the wildlife?

Mr. Hemmingway: Yes. Bonneville is spending about \$30 million a year on its restoration effort. The regime of the river, the flow rates that have been programmed for it, have been altered to provide a greater spring flow down the Columbia River to aid the juvenile salmon that otherwise might linger in the reservoirs. That derates the Columbia River by the equivalent of about a coal plant. It is a significant change. During the surplus, that has not affected the system very much, but when the surplus runs out the Columbia River will have about one less coal plant's worth of capacity.

Mr. Cureatz: What about fish ladders?

Mr. Hemmingway: Fish ladders are in place. The program is trying to make them more efficient. The problem as we perceive it today in the Northwest is not so much the upstream migration of the adult fish but the downstream migration of the juvenile fish which tend to go through the turbines on the dam and get killed. With eight dams on the Columbia and Snake River system, it is possible for 1,000 fish to start at the top and only about 200 come out at the bottom. If the efficiencies of the bypass systems can be improved, we anticipate tremendous increases in the numbers returning.

The Northwest Power Planning Council is made up of eight members, two from each of the Northwest states. The unique aspect of this arrangement, under the United States Constitution, is that they are appointed by the state governors. No other institution in the American constitutional framework which has a state-appointed body exercises authority over a federal agency. There have been constitutional questions about such an agency, and I am pleased to report that last week the ninth circuit court of appeals in San Francisco ruled that the power planning council is a constitutional body and can exercise its authority with respect to the Bonneville Power Administration. It is likely that case will go to the US Supreme Court for final resolution.

The council has two basic obligations. It develops the 20-year power plan on which I will spend the rest of my presentation. It also develops the fish and wildlife restoration program which Bonneville then has the primary obligation to implement. Under law, the power planning council must operate in public and involve the public in all its deliberations and all its work. Our public involvement program is extensive. It involves not only the utilities, the industries and suppliers, but also it tries to involve the general public to the extent it is possible.

Finally, the council is funded by the Bonneville Power Administration with a slight surcharge on Bonneville rates. The council has had a budget ranging between US\$5 million and US\$6 million in its five years of existence.

The act requires that the power plan contain a number of things. When the plan is in effect, all major acquisitions, those over 50 megawatts, must be consistent with the plan. If Bonneville chooses not to acquire through the plan, the only alternative is to go back to Congress and get separate

authorization. It is likely to be a very difficult course politically and will not take place.

I should mention that states and utilities retain the authorities they had under the original scheme; that is they are not required to go through the Bonneville Power Administration when they build a plant. They do not have to place new load on Bonneville; they can serve their own load directly.

However, it is likely that utilities will want to use the Bonneville Power Administration for serving their new load growths because of the financial benefits that can be obtained through using the financial guarantees that the Bonneville Power Administration can provide. Northwest utilities, particularly after the Washington Public Power Supply System debacle, are not in the best financial shape compared to other utilities and their ability to finance on the open market is not as great as other utilities.

The power plan mandate is required to contain a least-cost strategy and I will spend a good deal of time on that. Finally, the power plan is required to treat conservation as a power resource. It is not a resource that a utility has complete control over, like a coal or nuclear plant, but we are to plan for it as a resource and to plan the programs that the Bonneville Power Administration and the utilities are to implement to get that conservation.

I will move to what the power plan itself contains. The Northwest Power Planning Council developed the first power plan within the two-year requirement after the formation of the council in 1983 and just recently completed a revision of the power plan in 1986. I have brought copies for the members of the committee and they will be passed out at the conclusion of my presentation.

The elements I think are significant in the power plan that I would like to talk to you about today are the range forecast rather than the single-line forecast that the councils use, a flexible resource strategy rather than a single resource strategy, model conservation standards for new buildings and the action plan. I will be spending the bulk of my presentation on the first two items--the range forecast and the flexible resource strategy.

Model conservation standards are mandated by the Pacific Northwest Power Act. The council is to develop these standards for recommendation to the states and utilities for new commercial and residential buildings. The standard used is to be that these buildings must have conservation investments in them that are at least equal in their cost-effectiveness to a generation investment made by the utility.

The action plan is an invention of the council. It lays out the action items that the region must undertake in the next five years if it is going to be able to meet the flexible resource strategy that the council has developed. The action plan contains about 100 different detailed items and I will not be going into very many of those this morning.

I would like to talk now about the forecast. Planners love to talk about forecasts because everyone loves to talk about the future and speculate about the future, but when you pull apart a forecast, even the most sophisticated econometric forecast, you will find it is made up of a number of elements.

You will find it is made up of economic assumptions about how the economy and major industries within the economy are going to perform in the forecast period. They are made up of demographic assumptions, that is

assumptions about things such as how many people will move into a region, how many children people will have, how many women will be in the work force, when people will retire and those kinds of assumptions. Finally, there are assumptions about competitive fuels and their prices and the ways that those fuels compete with electricity.

10 a.m.

The point to notice here is when we start looking inside a forecast, a utility forecast or anybody else's forecast, you will see it made up of these elements. Whether you have done any forecasting or not, you know just from reading the newspaper that no one can predict with any accuracy at all what is going to happen in those items. If you could predict within an accuracy of one tenth of a percentage point or even one percentage point what is going to happen in those items in the next 10 years, you would be making a fortune in the stock market or doing something other than utility planning.

The economic, demographic and fuel price assumptions are essentially unknowable. The best we think we can do is to establish a range within which those individual factors are likely to vary. It is for that reason that the Northwest Power Planning Council has refused to put out a single line forecast or even to say that there is a most probable forecast. It has also refused to forecast, as used to be done, down to two and more decimal points, because that is just creating accuracy where there is none.

The council has developed a forecast with a high and a low. The high represents very robust economic growth for the Pacific Northwest, the kind of economic growth that went on during the 1960s and early 1970s. That forecast assumes that kind of growth will continue on into the late 1980s and into the 1990s. The low represents a continuation of the recession in the natural resource based industries of the Pacific Northwest. This is an enormous range, even though the high is really about the point that I understand Ontario Hydro is forecasting as their medium line.

Even with only a 2.5 per cent variation between the low and the high, in 20 years we have a difference of more than 10,000 megawatts between the low and the high. The consequence of that 10,000-megawatt difference can be enormous if you choose to go rigidly with one line or another rather than to develop a resource strategy that will meet the range as a whole. Say you build to the high, and it turns out you end up with the low. You have 10,000 megawatts of excess capacity that ratepayers are going to have to pay for in any event. If you decide you are going to meet only the low, you may be in severe deficit in the future.

The council's plan is to try to develop a resource strategy that avoids the pitfalls on either side of this ridge, that avoids the pitfall of developing too few resources if load turns out to be high and developing too many resources if the load turns out to be low. The council's strategy is a flexible resource strategy. There are some concepts the council has developed that I would like to spend a little time with you on, because understanding these concepts is key to understanding the power plan the council has developed.

The first is the concept of flexible resources. If you knew what your load was going to be, you would not care about the size of the plants that were going to be built or the lead times of those plants. You would build to that forecast, and you would choose the cheapest resource, no matter how big it was or how long it took to build. Since you do not know what your future

load will be, you must inevitably favour resources that have shorter lead times and smaller increments, if there is not a tremendous cost to management.

The central planning mistake the Pacific Northwest made in the 1970s was assuming it knew what the load was going to be and building nuclear plants to meet that load. Not only were the nuclear plants more expensive than was anticipated--forget about that side--but also, once they were started and the costs began to be sunk, we were not going to get a kilowatt hour out of that investment until we had gone billions of dollars of investment further into that plant. As a result, the utilities were faced with this terrible choice halfway through a nuclear plant program, "Do we write off a billion dollars worth of investment or continue to sink further billions into these plants?" That is inevitably a bad choice for utilities to have to make.

Nuclear is probably the the worst resource of which one can conceive in its flexibility. On the other hand, conservation is the ideal resource in flexibility. Its lead time is relatively short. We do not know precisely how long it takes to gear up a conservation program but we know it is probably in the three-year to five-year range, starting from scratch, compared with the 17-year lead time for the nuclear plant, and it comes in very small increments. Insulating a home results in about half a kilowatt of additional savings to the system. You can compare that with a nuclear plant which comes only in an increment of about 800,000 kilowatts.

The council has developed the concept of options to deal with generating resources to increase their flexibility. Options is a simple idea. When you think you might need a plant, around the time when you can look at your high forecast and say, "If that results, we are going to need a plant," you begin the siting, licencing and design process, which take anywhere from one third to one half the time it actually takes to build that plant. By the time you get these processes completed, chances are you are not on the high forecast and do not need to build the plant immediately. We have said that plant should be put on the shelf and the construction delayed or held. That is essentially the options process. You spend relatively little money to get the farthest down the road that you can before you have to start spending the big dollars for construction.

Another type of option is to actually build the plant. You may end up doing this even with the first option I described and find out the need is not there. Then we would sell the output of that plant out of the region, probably at a loss for a time, until it was needed in the Northwest.

A third concept which is key to understanding the planning is capability building. I am sure Mr. Hickok will spend time talking about this concept. We know you cannot gear up a conservation program at the snap of a finger. It is certainly true that there are some resources in conservation and renewable sources, particularly outside the residential sector, about which we do not know a lot and need to learn something more. We need to learn what kind of programs it takes to bring that resource out of the economy and to find out how much we can really count on. For that reason, the council advocates building capability, even during the surplus: running pilot programs, acquiring some conservation kilowatt-hours and some renewables so we can learn and be ready to implement when loads pick up and the deficit situation comes on again.

Finally, the new concept of lost-opportunity resources is in the council plan. There are some resources you want to acquire, even during the current surplus, because they are so cost-advantageous. One of these is the energy

savings that can come in new construction. You can acquire twice as much energy at half the price by building a house correctly in the first place than if you try to go back later and retrofit that house in a conservation program.

10:10 a.m.

For this reason, the council has said that the model conservation standards, for instance, in new residential buildings, is the highest priority for the region to implement in the next few years. Another lost-opportunity resource might be a cogeneration resource in an industry that is going through a plant modernization. You will not be able to sell cogeneration within an industry that is not prepared to shut itself down and to put that capital retrofit in place. You will have to use their window of opportunity and not the utility's window of opportunity. Therefore, there may be lost opportunity resources we want to acquire, even during the surplus.

Now I want to give you a brief gallop through the resource plan that we have developed. If the high loads result, this is what the resource plan looks like. Conservation makes up the bulk of the early resources that would be needed in the northwest. Then there is a small amount of efficiency improvements in the bands themselves, and some electrical improvements.

There is a thing we call nonfirm strategies which uses more of the variability in the hydro system in the northwest to our advantage. In a good water year, the hydro system in the northwest can produce 50 per cent more energy than it does in a bad water year. Usually, that water is used to generate surplus power which is sold in California or is spilled. We think we can make better use of that water through a variety of strategies. We do not think there is a lot of small hydro power that can yet be developed in the Pacific Northwest.

Here was a critical decision the council had to make about what it puts in the resource plan. In the resource plan, we put only things that we were highly confident could be developed. You will notice there is no wind, no geothermal and no solar photovoltaics. Until those become economic in today's world, they will not find their way into the power plan. For that reason, this is a quite conservative view of the future.

There is probably more than 300 megawatts of small hydro power in the Pacific northwest, but that represents only retrofits in existing structures and irrigation dams. Until we know more about what is acceptable, it will not find its way in the plan. Similarly, there is relatively little cogeneration, about 500 megawatts. After that, the next resource of choice will have to be coal.

There is no nuclear in this plan for a couple of reasons. First, it does not fit very well into the flexible resource strategy. Second, it does not operate very well with respect to the hydro system when you truly model the hydro system. The cost of a coal plant is about half capital cost and about half fuel cost. A nuclear plant is about 90 per cent capital cost and about 10 per cent fuel cost. With the variability we have in our hydro outfit each year, we can shut down coal plants and save about half the cost of that coal plant. However, it is not economic to shut down a nuclear plant.

Mr. Haggerty: Based on that slide projection, how much of this depends on import of electricity from Canada?

Mr. Hemmingway: None. Another one of those resources which might

later be reliable, which is not in this plan, is imports from British Columbia.

Mr. Haggerty: Are you not purchasing it now?

Mr. Hemmingway: Not in the Pacific Northwest. California is purchasing some. It is attempting to purchase a good deal and run it through the transmission lines in the Pacific Northwest.

Mr. Haggerty: They run through Washington.

Mr. Hemmingway: Yes, and Oregon. To say the least, the Bonneville Power Administration, with its own surplus, is not eager to allow British Columbia access to the only other market available, so there is a great deal of tension.

Mr. Moore: Where do the two mothballed nuclear units come into this resource plan?

Mr. Hemmingway: Under the criteria that the Northwest Power Planning Council chose--that is, the resources had to be reliable and available under current conditions--it was our view that the two mothballed Washington Public Power Supply System nuclear units did not meet those criteria, because financial and institutional difficulties have to be overcome before construction can be resumed on those plants. We think those resources are cost-effective and would fit in somewhere about where the nonfirm strategies come in, but the institutional problems need to be resolved first. I can get into that in greater detail later when I talk about how we did the analysis.

You can see how many resources were required for the high scenario. If you look at the low one, for the next 20 years the Pacific Northwest needs no resources at all. The only reason this line slopes up slightly into the low scenario is that because we do not know what load will result, we program in the pilot conservation standards for new buildings. That will produce some energy during the 20 years; otherwise, there is no need for additional resources in the low scenario.

Mr. Snell: Are those econometric factors or is that partly controlled by using conservation methods?

Mr. Hemmingway: No, the low pattern in the forecast is before we do any programs. That is the pure forecast without new conservation and without resources.

Mrs. Grier: Is that a forecast based on end-use modelling?

Mr. Hemmingway: Yes, it is end-use modelling in several sectors and econometric in the places where we have not yet done end-use modelling. In some places it is very difficult.

In a more probable scenario, something like the medium high, the resource strategy looks something like that. Interestingly, even with fairly robust load growth, we think we can avoid adding new thermal generation in the Northwest until some time around the turn of the century. We will not have to add coal until about the year 2000.

Mr. Snell: The way it appears there, it looks as though conservation is almost base load, what you would call an alternative. We had presentations from the industry task force and the nuclear association indicating that conservation is a very poor alternative for base load.

Mr. Henningway: Each conservation item produces a different kind of reduction in load. We are a winter-peaking system in the Pacific Northwest, with a high saturation of electric heat. Almost all other United States electric systems are summer peaking with an air-conditioning load. We are very interested in reducing usage during the winter for space heating. For instance, we programmed relatively little agricultural conservation, irrigation conservation, partly because it comes at the wrong time of year.

Mr. Snell: Can you vary the peak from the low to the high season in your load factor?

Mr. Henningway: Our load factor is considerably worse than yours. It is somewhere around 60 per cent; I do not have that immediately in my head. The worst day is usually the cold day in January at the beginning of the week when schools and everybody else begin to gear up.

Conservation that is programmed in the plan comes from a variety of sources. We think the new residential model building standards alone can produce about the equivalent of a nuclear plant in the high case. Those are fairly aggressive changes in the way residences are built, and that is the sector about which we know probably most.

The other elements in there are probably quite conservative estimates because the power planning council was reluctant to project new technologies or extraordinary conservation savings when we did not have much experience. For something like manufactured housing, for instance, we are projecting only 35 megawatts when about one quarter to one third of all new housing in the Northwest is manufactured. That is probably an extremely conservative projection of what is available. We believe close to 4,000 megawatts of conservation are available if the high-load case results. Of course, less conservation is available in lower-load cases because of less building activity and less economic activity.

10:20 a.m.

I want to review briefly the major policy items contained in the resource strategy of the 1986 plan. We urge that the region not acquire new resources during the surplus. There is no need to go out and build a coal plant in advance of need any more than there is a need to begin major conservation acquisition efforts during the surplus. That has disappointed some members of the environmental community who feel we must exploit the conservation effort now and have a full-tilt program to acquire conservation. It has also disappointed the backers of the Washington Public Power Supply System nuclear plants who would like to see the construction resume immediately.

An exception to that rule of avoiding the resource acquisition is to acquire the lost opportunity of resources when they are cost-effective. The most cost-effective are the new building standards, which we think should be implemented as soon as possible. The new building standards should be implemented through new building codes, and if local jurisdictions are not willing to put those new building codes into place for their own political reasons, then the utility system should be ready to provide the subsidies which would cause those practices to become standard in the industry.

The region should build capability in conservation and renewables. Mr. Hickok will talk about a lot of his activities in building that capability. The region should look to conservation first because it is the most flexible

and because it turns out to be the cheapest resource we have found out of all the resources we reviewed.

We should option generating resources when we begin to see the need in the high forecast. If we have 1,000 more megawatts of load growth in the northwest, we should start to option a coal generating plant at that point. We will probably not need to build it very soon, but we should have it ready to build if the load continues to grow. We should build that generating resource only when it becomes clear, and we should build coal not nuclear, for the reasons I gave you earlier.

Mr. Haggerty: What lead time can they plan on to build a plant?

Mr. Hemmingway: We think it will take about four years to site, license and design a full plant, and four to five years to construct the plant once it goes before--

Mr. Haggerty: That is nine years then.

Mr. Hemmingway: We are looking at eight to nine years.

Mr. Ashe: When you consider coal in these, do you go at all into the aspects of the capital investment needed to make it a relatively clean coal plant? I am talking about incorporating the use of low-sulphur coal, scrubbers or equivalent, etc.

Mr. Hemmingway: All these plants will be burning western US coal which is relatively low in sulphur and relatively clean. Nevertheless, all the plant costs we projected include wet scrubbers as the pollution control technology. That is probably a conservative assumption because we hope by the time the plants are actually needed in the Northwest, something less expensive for acid gas control is available other than wet scrubbers, such as fluidized-bed combustion or other technology.

As I said, the action plan contains about 100 different items to be implemented, but they break down into a number of categories. These are the main activities that the region should be undertaking during the next few years. The region should attempt to sell the surplus. We have a difficulty in selling the surplus; that is, we do not know how long the surplus will last. If the high load results, the surplus will last only a few years; if the low load results, it will last 20 years.

Ideally, utilities should try to sell the surplus with a call-back provision of some kind. If that is not possible, they should try to err on the short side of the sale. As I said, the region should implement the building standards as soon as possible. We have urged that nuclear plants WPPSS 1 and 3 be preserved, not built and not terminated. I will go into that in some detail. We think capability should be built in conservation and renewables, and if load grows about 1,000 megawatts, we should auction that whole plant.

I will move into the discussion of the nuclear plant. We have run three cases through the models the council has developed. The first assumes we terminate the plant right now. The second assumes we could hold that plant for 15 years in its current state, spending about \$12 million per plant per year to keep it from rusting away and to preserve the site and the licence, etc. In the third case we immediately restart the plant.

Mrs. Grier: How much have you spent on it so far?

Mr. Hemmingway: For the two plants together, it is \$3.5 billion, is it not, Mr. Hickok? Or is it as much as \$5 billion? That is not on an exhibit. It is between \$3.5 billion and \$5 billion. I can dig that out for you. It is a lot of money.

Mr. Haggerty: What is that in megawatts?

Mr. Hemmingway: Peak at 1,250 and 1,240, average at about 800 megawatts. American nuclear plants generally do not perform with the same passing factors as Candu reactors have done after they have 65 per cent capacity.

In the computer, we ran these different scenarios through a variety of loads in a variety of water states over 20 years, up to 500 different cases, to see how they perform. We know if we have low load growth and good water years in the Pacific Northwest, we will have no need for future generation. If we knew that was going to be the result, the best option would be to terminate those plants today. On the other hand, we also know if we have bad water years and high load growth, we will need those plants relatively soon. In that case, there would be great value in preserving them and starting construction as soon as we see the need developing.

We have a high value on the one end and a low value on the other, and we try to figure out whether, over all the possible cases we might analyse for the future, that turns out to be a net value to the positive. It does; it turns out that preserving the first unit is a net value to the positive of about \$440 million in the Northwest in present value terms. Preserving both of them is about \$630 million.

Starting the plant immediately gives us almost no benefit, actually a negative one, less than zero. The reason is that there are a lot of cases in which we can project we would not have load growth, we would have relatively good water, and as a result we would not need the plants at all. They would be of no benefit to the Northwest. This kind of analysis, using these kinds of tools, will tell you whether a plant is useful without your having to know what the future will be. You do not have to know for sure what the load growth or water states will be.

The council opted for trying to preserve the plants for as long as possible. The best wisdom in the Pacific Northwest is that the plants can be preserved both physically and in their licence ability with the federal government for as long as 15 years. We do not think they can be preserved after that; it is the longest time we have looked at.

Mr. Cureatz: However, you anticipate using them between now and the 15 years.

Mr. Hemmingway: We anticipate doing nothing with the plants. These plants are 63 and 76 per cent constructed to date. They are now in a state of preservation. In fact, the roof is not even on the containment building on WPPSS 3. Very little activity is going on in those plants right now.

The council has recommended that even less activity go on; reduce the cost to a minimum preservation mode and hold those plants for as long as possible. Do not terminate them, as some people advocate, but do not begin construction again either, until we can see that the load will actually be there.

Mr. Cureatz: I did not make myself clear. What I meant was that the maximum amount of time is 15 years. You could wait for 15 years and then start again, and everything would still appear through the computer printout?

Mr. Hemmingway: Yes.

Mr. McGuigan: What is the limiting factor on 15 years? Why would you go longer than that?

Mr. Hemmingway: We have chosen to go longer than that for a variety of reasons. One is that the utility itself, Washington Public Power Supply System, has not given us anything beyond 15 years. The council has made a judgement that the technology will start looking obsolete 15 years from now. The council could clearly be wrong on that. The technology could look obsolete in seven or 10 years, or the technology may not be obsolete for 20 years.

Mr. Haggerty: You have an expenditure of \$3.5 billion but you may end up with a higher expenditure in the next 15 years, maybe \$4 or 5 billion.

Mr. Hemmingway: Yes. Just to hold the plants costs \$1 million a month per plant. That is the preservation activity. To complete each unit would cost about US\$1 billion each. The region has a vested interest in not completing those plants before the need is clear, because there is a lot of capital expenditure left to be put into those plants.

Mr. Haggerty: It is almost the same boat we are in with Darlington.

Mrs. Grier: What about the economic impact on the areas where the plants are located of both the decision to cease construction and the uncertainty of a 15-year attitude of thinking you may or may not gear up?

Mr. Hemmingway: These two plants are not in the same place. WNP 1 is in Richland, Washington, on the Hanford reservation where the first plutonium for the atomic bomb was developed in central Washington. That is America's nuclear city. It has a variety of defence employment as its base, but it had an enormous amount of nuclear employment there. They were constructing three nuclear plants there, WNP 1, 2 and 4. WNP 4 was terminated when it was about 25 per cent complete. That was a severe economic impact. WNP 2 was completed and has been on line for one year. Construction there has stopped. WNP 1 has also stopped.

There is no nuclear construction going on in that community, whereas two or three years ago three nuclear plants were being built. The economic impact in that community has been fairly high. In the US, nuclear workers are very mobile. They have always been mobile. They have tended to go from one site to another. They simply ended up being mobile a little earlier than they anticipated in those communities.

Mr. Haggerty: In my first question to you at the beginning of your submission this morning, you indicated that nine nuclear plants were either mothballed or cancelled. That is a pretty heavy expenditure for somebody to pick up the tab on. You have indicated there is no mention of nuclear in your future production of electricity within that grid.

Mr. Hemmingway: The five WPPSS nuclear plants were the only ones in which concrete was actually poured. American utilities could spend up to \$300 million on a plant before they got to the point of doing anything onsite.

Mr. Haggerty: Why the cancellations?

Mr. Henningway: I can use one example. Portland General Electric in Portland, Oregon, is planning a twin-unit, 2,500-megawatt-capacity plant in north-central Oregon, called Pebble Springs. That plant ran into extreme regulatory difficulty with popular opposition from environmental groups in Oregon. They dragged out the hearings considerably. They won a lawsuit requiring the hearings to start over again. By the time the utility got into the second set of hearings, it realized the need was not going to be there for the plant and the costs were now getting out of control. It decided to terminate the plant.

Mr. Charlton: Costly, slow hearings can sometimes have a benefit.

Mr. Henningway: Yes. The president of that company will tell you confidentially that the bearded environmentalist who brushed off the plant is the saviour of the company.

Mr. Haggerty: Why would they get into gearing up nine nuclear plants and then, all of a sudden, find there was no need for any of them now, and that they could get by for the next 10 or 15 years? What happened to the forecasting? What forecasting were they using?

Mr. Henningway: At the time the decision was made in the early and mid-1970s to commence a major nuclear construction program in the Northwest, the forecast averaged 4.5 per cent to five per cent. You can see what a difference between zero and 2.5 per cent does over 15 years. We have experienced about one per cent to two per cent growth in the past several years. The difference between that and five per cent is enormous. When you see that kind of turndown from the forecast, a nuclear strategy becomes hopeless. The plants do not become needed for, not just years, but decades.

Mr. Haggerty: Who picked up the cost? Was it passed through to the customer?

Mr. Henningway: That is a very significant legal issue in the United States. You may be aware that the largest default on a municipal bond issue in the history of the US was the Washington Public Power Supply System. The courts found that the member utilities were not obligated to pay the \$2.25-billion worth of bonds that had been issued on WPPSS plants 4 and 5, which were terminated. That default means that the people who hold those bonds essentially have worthless paper.

That is one reason the council said it is not possible to finance plants 1 and 3 at this point. WPPSS does not have the kind of reputation in the financial market that would allow it to finance them at competitive rates.

Mr. Haggerty: It does not have a triple-A rating?

Mr. Henningway: No. It does not have a triple-A rating.

Mr. Charlton: In terms of holding those two plants in the preservation mode, your proposed increments of additional capacity did not include any nuclear. Presumably, before you bring those two plants out of this preservation mode, you will put coal on line.

Mr. Henningway: Not necessarily. If you look at the medium-high load forecast, coal does not have to come on line until about 2000. If we assume an

eight-year planning and construction process and a four-year construction process for the coal, we do not have to make a commitment to build that coal until some time around 1995. The council and the region will be going through this planning process, which continues, and at some point the council and the Bonneville Power Administration may decide that these plants are financeable, that they are ready to go forward and can be put in ahead of the coal, because they are cheaper in our analysis than coal.

10:40 a.m.

Mr. Charlton: Even with what you said earlier about the flexibility to cut back coal in high-water periods?

Mr. Hemmingway: They are cheaper only because about two thirds to three quarters of the costs are already sunk. We are talking only about the incremental cost of finishing and operating a plant. Knowing what we know today about the fickleness of forecasts and knowing how nuclear interacts with water in the Northwest--meaning that we cannot shut it down very easily when we have a good water year and capture economies there--no one in the Northwest would conceive of building a new nuclear plant.

Mr. Haggerty: In other words, all your planning is taking place in the Northwest grid. You have compared hydro power with coal and you have totally neglected nuclear.

Mr. Hemmingway: New nuclear.

Mr. Haggerty: You indicated that is because it was too expensive.

Mr. Hemmingway: It is too expensive, too inflexible and it does not integrate well with the kind of hydro system we have in the Northwest.

Mr. McGuigan: Going back to the 1970s when the decisions were made to put in the nine plants, you did not have the council in place at that time. I am assuming that various bodies made these decisions independently.

Mr. Hemmingway: That is correct.

Mr. McGuigan: You did not have an overall authority looking at it.

Mr. Hemmingway: The primary reason Congress chose to create the council was that it felt it needed a region-wide, publicly accountable planning body. The Washington Public Power Supply System, in particular, was very protective of its independence. It did not feel it needed any public body over it. After all, it was a public body and members of publicly owned utilities sat on its board. In my opinion, the fact that those publicly owned utilities lacked the sophistication to analyse the plans of the supply system resulted in an extremely overambitious building program that proved to be a disaster.

Mr. McGuigan: Is that the competitive factor where people say, "Let us get our plant built before the other people get their plant built"?

Mr. Hemmingway: Right.

Mr. McGuigan: Was there not a fair amount of optimism in the 1970s about the Pacific Rim; that this was a market that was opening up and you would be selling so much more stuff to the Pacific Rim? Would that not enter into it too?

Mr. Henningway: There were two basic reasons that the five per cent forecast was wrong. One was that they overestimated the volume of economic activity. The Northwest is still very much in a recession because of its timber-based economy. It has not experienced the boom that the rest of the US has experienced in the past three years.

Probably more important, the forecasting technique used then simply did not assume that the use of electricity would level off as price increased and as saturation of electric appliances occurred in the marketplace. After everybody got colour televisions and electric heat, there was simply no place for that to grow. As rates went up, lo and behold, electric planners discovered that electricity behaves like a lot of other commodities: as price goes up, consumption goes down.

When I first entered this business in 1975, the best planners for the best utilities were saying: "Electricity is a unique commodity; it is a necessity. If the price goes up, the consumption will not decrease by very much." They were simply wrong.

Mr. Chairman: Perhaps we should let Mr. Henningway complete his presentation.

Mr. Henningway: I am basically finished. I can go into some of the details of the planning process and the models, but from the tenor of the questions, my guess is that is not where the committee would like to go. I can discuss that with staff.

Mr. Sargent: I am sorry I was late getting here. What was the total public investment in WPPSS?

Mr. Henningway: The total public investment in WPPSS has been close to \$7 billion.

Mr. Sargent: What are the losses?

Mr. Henningway: Actually, it is more than \$7 billion. It completed WNP 2 at a cost of about \$3.5 billion. WNP 1 and 3 have had about \$3.5 billion sunk in them so far and those are in mothballs. WNP 4 and 5 were terminated after \$2.5 billion was spent on them.

Mr. Sargent: What would be the salvage factor? Is there any salvage?

Mr. Henningway: There is some salvage in equipment. If there were a better nuclear industry anywhere, some of the reactor components would probably be sold. We estimate that there is probably close to a zero or negative salvage value; that is, the cost of restoring the site, putting the site back to something that we could leave for generations, equals the amount we could get from the salvage savings.

Mr. Chairman: Can I interrupt for one more second? It is a technical matter, Mr. Henningway. It is difficult to pick up your answers and Mr. Sargent's questions when they are all focused that way. I wonder whether you could take a seat back here.

Mr. Henningway: I would be happy to.

Mr. Chairman: Thank you very much.

Mr. Henningway: Maybe I can turn the lights on then.

Mr. Chairman: You can be comfortable and we can hear Mr. Sargent's every word. Carry on.

Mr. Sargent: Is Hanford the biggest nuclear dump in the world?

Mr. Henningway: Right now, it probably has more nuclear waste there than anywhere else. It has had more separate reactors there than anywhere else in the world; defence production reactors and test reactors primarily.

Mr. Sargent: Is there any veracity in Myers's statements in his book Kollover? Have you read that book?

Mr. Henningway: No, I have not read that book.

Mr. Sargent: Have you heard that they are going to dismantle a silo on a reactor on the east coast, transport it by freighter through the Panama Canal and bury it at Hanford?

Mr. Henningway: Yes.

Mr. Sargent: Is that really going to happen?

Mr. Henningway: It has happened in other cases. The US base in the Antarctic had a small reactor which was dismantled. Its parts were shipped to the Northwest and buried at Hanford. Those are not extremely radioactive parts such as fuel itself would be, but they were still radioactive enough to require disposal.

Mr. Sargent: Do you have enough information on the construction format of Darlington to say that could be salvaged for cogeneration or pyrofoam?

Mr. Henningway: I do not have enough information.

Mrs. Grier: Is the nuclear waste disposal facility at Hanford seen as a permanent disposal site or is it a holding facility until more permanent disposal comes along?

Mr. Henningway: All the defence production wastes are stored at Hanford, and there is not yet a permanent disposal site for those wastes. The civilian production wastes are stored onsite in the spent fuel storage pools, as they are at the Canadian units. The US is going through a very lengthy process right now to try to select two disposal sites; one in the east and one in the west. Incidentally, Hanford is one of the candidate sites for that permanent disposal site.

Mrs. Grier: I see. The way it is stored now is not seen as being the ultimate disposal.

Mr. Henningway: That is correct.

Mr. Charlton: Can we go back closer to the start of your presentation where I think you said there were 41,000 installed megawatts?

Mr. Henningway: Yes.

Mr. Charlton: The average load was only 15,000.

Mr. Hemmingway: That is correct.

10:50 a.m.

Mr. Charlton: What is the peak load in the Northwest?

Mr. Hemmingway: I do not have that immediately. I think it is between 25,000 and 30,000. We have a very high surplus of peak capacity now due to the construction of additional units that were relatively cheap to install on many of the Columbia River dams. When we have overgeneration for the northwest, we can often sell the power south to California. In recent years, the Northwest has served up to 20 per cent of California's needs. California is a huge market with 23 million people.

Mr. Charlton: I would like to go back to a question raised earlier about conservation appearing, in the way you are planning the program, to be a major base-load contribution. I took from what you said, and I would like to clarify it, that the estimates of conservation are fairly conservative at this point in a number of areas other than new residential homes.

Mr. Hemmingway: Yes.

Mr. Charlton: As you move out and identify additional realistic conservation in terms of end uses and so on, is it likely that plan is going to change significantly yet again?

Mr. Hemmingway: My opinion is it is likely, particularly in the commercial and industrial sectors, there is more conservation that can be obtained cost-effectively than is contained in those numbers. For instance, in the industrial sector the council used only replies from a survey of major industrial customers in the Northwest, asking them what they would conserve given a certain level of incentive. Since we have not begun to experiment with incentives in the industrial sector to any great degree, my guess is that once these programs get up and running, a lot more conservation will come out of that sector. They are certainly not operating at maximum efficiency now.

Mr. Charlton: I have a question based on the political performance we have seen in Canada in the federal and provincial jurisdictions being able to come to a consensus around a legislative approach to a number of things we have been debating over the years. Presumably the legislation that was passed to create the Northwest Power Planning Council had to be passed by all four of the legislatures involved.

Mr. Hemmingway: The original legislation was passed by the Congress of the United States. It affects primarily the authorities of the Bonneville Power Administration, which is a federal agency. Under our federal system, that legislation said that if the states chose to adopt this format and to appoint members of the council, then this agency, the power planning council, would be created. All four states chose to do that and gave their governors legislative authority to make the appointments.

Mr. Charlton: Presumably the four states all chose to opt in to that because of the magnitude of the situation that faced them.

Mr. Hemmingway: Yes, and because it enhanced their authority. They now have a significant ability to influence events that happen in the electric

production sector, whereas previously those were decided more by utilities and by Bonneville, the federal agency, over which they had relatively little control.

Mr. Charlton: You mentioned during your presentation that the Northwest Power Planning Council favours diversity in its approach to both planning and additional capacity in terms of how it looks at the resource options. Presumably you came to that conclusion for some reason. What has your study shown in terms of the risks of relying too heavily on a particular technology?

Mr. Hemmingway: We did not look at it much from a risk standpoint of relying too much on a particular technology because we saw that conservation was our first resource of choice. If we rely too much on any one resource in the region, it is projecting that we can actually build those coal plants once conservation and those other resources are exhausted.

By that time there may be more acid gas restrictions on building coal. There may be the kind of popular reaction against coal that existed against nuclear in the US or there may be greenhouse-effect concerns about coal. Diversity was not something that we looked for. It was something that resulted from ending up looking at resources from the back end, looking at conservation first and renewables next.

You have touched on a significant problem. For instance, suppose the Northwest had been successful in building nuclear plants, even assuming the plants had been needed, and Three Mile Island or something similar had come along and those nuclear plants all had to be shut down. Then the Northwest would have been in a severe pickle in meeting its electric needs.

Relying on one technology for meeting all its load growth puts a region into a potential situation where it may operate well for a while, then something may happen and suddenly it is into a very severe problem. The diversity question is very similar to the load growth question we face. If you can predict what the future is going to be, it is very easy to plan, but planning is trying to deal with the fact that you cannot predict what the future is going to be.

Mr. Sargent: In the last two years we have faced retubing in Pickering, and the cost to retube is \$1 billion. Now in Bruce we have a similar thing they cannot nail down, and we may be facing another \$1 billion there. In establishing rate cost, do you figure in the debt retirement cost, the operating cost and the cost of dismantling and finding a waste storage answer? Is it fair to say that the rate structure should have all those factors involved in it?

Mr. Hemmingway: Yes, and the projections we used on the costs of those plants did include dismantling costs, but they are so far out in the future that when you bring them down to the present value they do not look very significant.

Mr. Sargent: The figures do not mean anything.

Mr. Hemmingway: One of the decisions we had to make with respect to analysing nuclear was similar to the question you have with your Pickering and Bruce units. In the older nuclear generating plants in the US, we use primarily the pressurized water reactor technology and not the boiling water technology. In the pressurized water reactor there is a steam generator, which

is a significant element of the plant where the water from the reactor heats other water which turns to steam and drives the turbine. That heat exchanger is a very complex piece of machinery, and in the older reactors those steam generators have started to fail much earlier than anticipated.

Mr. Sargent: Do you figure the cost of this as \$1 billion?

11 a.m.

Mr. Hemmingway: That is close to the cost of replacing steam generators in a modern nuclear plant. We had testimony primarily from the antinuclear groups, which said we should include replacement of steam generators in the cost of nuclear units after 15 years.

We chose to believe the industry itself and say we think the generators can last the lifetime of the plant. They claim they have solved the problems that caused the steam generator failures in the earlier plants. That was a relatively safe assumption for us to make because we did not program in any new nuclear anyway. We are only dealing with two nuclear plants that are left, and the steam generator issue did not make or break the cost-effectiveness of these two plants.

Mr. Sargent: The Atomic Energy Control Board and Atomic Energy of Canada Ltd. are our regulatory bosses--in quotes, question mark. You have the Nuclear Regulatory Commission and INPO, the Institute of Nuclear Power Operations, as inspectors keeping you in a straight line. Are they active on a daily basis in each nuclear plant in the US?

Mr. Hemmingway: I am not intimately familiar with the operations of NRC in nuclear plants. I have not been on the operations side. My impression from reading the reports, however, is that they are active on a daily basis. My understanding is the NRC now has a person on site in every plant.

Mr. Sargent: They tell us, and you probably have the same problems, that by 1990 they are going to have some geological rock formations in the mountains somewhere and they will be able to put the nuclear waste in caves in glass caskets sealed with gold. It has to be gold to give permanency, and there is no way we know the cost involved. Are you on the same track? By 1990 will you have a place for waste?

Mr. Hemmingway: Under the act passed a couple of years ago the federal government is in the process of selecting permanent waste disposal sites, one on the west side of the country and one on the east side. They must make a decision by 1998, which gives some idea of the level of complexity that is thought to be involved in that decision. There are currently three sites in the western US under consideration. A final environmental impact statement will very shortly be written on those three sites. Hanford, Washington is one of them, and there are also sites in Nevada and Texas.

Mr. Sargent: You probably read the cancer downwind reports about Hanford in the Spokane papers?

Mr. Hemmingway: Yes.

Mr. Sargent: We have an unusual number of cancer deaths in my area of Grey-Bruce, and there are progressively more all the time. It is an acknowledged public fact that the downwind cancer deaths are written about many times in the Spokane papers. Does that carry any weight with the NRC?

Mr. Hemmingway: I know the NRC has looked carefully at the epidemiological studies. Their conclusion, so far, is that they cannot draw a conclusion that anything from a nuclear generating plant has caused any additional cancer. At Hanford the great bulk of radiation that occurred there, particularly the radiation releases to the atmosphere, has come from defence-related reactors, not from the one civilian reactor there in WPPSS 2.

Mr. Sargent: In closing, you have probably seen the scores of pictures of animals born in the field with no heads or no legs. The nuclear factors of Hanford are blamed for causing that in the fields in that area. Thank you for your time.

Mr. Moore: The plan you produce every two years that you provided to members of the committee is the official plan for the electricity system in the Northwest. Is that correct?

Mr. Hemmingway: It is the official plan for the major acquisitions for Bonneville. Utilities are not required to go through Bonneville but we imagine they will. There are other ways to make the plan enforceable upon those other utilities through the public utility regulatory process in the individual states.

Mr. Moore: Could you give us an outline of the resources that are put towards the development of the plan?

Mr. Hemmingway: The council has about 40 professionals. They are divided among different divisions and there have been about 10 to 12 professionals devoted to the power planning effort.

Mr. Moore: And what sort of dollars?

Mr. Hemmingway: Their budget has probably been around \$1 million a year. We started out with relatively high levels of consulting activity to help build these models. Now that they are built, more of the work is being done on staff and the budget is coming down.

Mr. Snell: Mr. Hickok, here we have had--

Mr. Hemmingway: I am Mr. Hemmingway.

Mr. Snell: I am sorry, Mr. Hemmingway. Mr. Hickok may also be addressing the question I have because it has to do with your surcharge on customers that do not abide by certain conservation guidelines. The committee might be very interested in that because we have had lengthy discussions on concerns about customer equity, ratepayer equity, freedom of choice and the resistance to changing behaviour of the customers.

These are all brought out as things that limit the potential of conservation here or at least increase the scepticism within the utility about the effectiveness or attractiveness of conservation. I am interested in the rationale behind it, how you get away with that and how it is imposed on customers who do not follow guidelines and are actually assessed a surcharge.

Mr. Hemmingway: The thesis behind that provision in the power act was that customers who do not use energy efficiently and utilities which do not undertake programs to cause their customers to use energy efficiently are imposing costs on everybody else in the region; therefore, they should contribute a greater amount to the electric revenues in the region than those who are using energy efficiently.

The surcharge provision requires that a minimum 10 per cent surcharge be assessed against those utilities in jurisdictions that have not implemented the building codes. That has not yet been imposed upon any utility system. We think we can avoid imposing it upon any utility system through the incentives that Bonneville Power Administration makes available and other things; essentially, by making them an offer they cannot refuse.

Mr. Snell: I find it interesting because we had a conservation program that was offered in municipalities, and 18 of 320 took it up. We have that kind of problem here with take-up in conservation.

My next question has to do with your options approach and what implications it had for public review, going through the approval process for an option and then not shelving it but putting it on hold per se. I am interested in the implications of the public review process. What would happen if public opinion changed in the interim? How would you get away with that?

Mr. Hemmingway: With respect to coal plants, the states have the primary regulatory authority. The question is whether a state would sign off at the time that the plant is sited, licensed and designed and then never go back and look at the plant again when construction started.

Most of the states have said, "We are prepared to grant a limited shelf time, three to five years, during which we will not take a second look at the plant." After that time, you are going to see more inclination to take a second look at the plant. Since we are quite a way away from needing our first option on a coal generating plant, we do not have firm guarantees from the individual states, but the siting bodies have told us that they feel the three-to-five year time is about appropriate.

11:10 a.m.

Mr. Snell: My last question has to do with the mothballing of the two nuclear units. In Ontario, one of the important rationales for continuing with the last two units of the Darlington nuclear generating station is that if it is brought on and there is a surplus at the time, it can retire more expensive generating facilities. Is that a factor in the Northwest?

Mr. Hemmingway: No. We do not have more expensive generating facilities that could be retired. There is no oil or gas generation which is base loaded. California, for instance, is going through that activity. It is not retiring more expensive units, but it is retiring units that are causing air pollution in significant air-pollution basins through the use of bringing nuclear on line.

Mr. Snell: Another mothballing issue is the potential and lead time of conservation. That probably would be more appropriate for Mr. Hickok.

Mr. Hemmingway: I think Mr. Hickok will cover that in some detail.

Mr. Charlton: I have one last question. You have been going through a fairly substantial process of cutbacks in federal programs. What kind of impact has that had on your planning process in the Northwest?

Mr. Hemmingway: This had no impact on planning because we believe when the time comes, the federal government will see the wisdom of making the funds available for Bonneville to be able to do the borrowing, or else will change the law to allow local utilities to do the borrowing or Bonneville to borrow directly in the financial markets.

There have been some problems in the capability building programs that I am sure Mr. Hickok will address.

Mr. Chairman: Thank you, Mr. Hemmingway. Now we have Mr. Hickok.

BONNEVILLE POWER ADMINISTRATION

Mr. Hickok: Mr. Chairman, members of the committee, usually my presentation about the electric power conservation program of the Bonneville Power Administration begins with planning, but following Mr. Hemmingway, I can dispense with that and I will.

I have provided the committee with an outline of my presentation, including several attachments. Those attachments are selected because of the indication I received from Mr. Snell of the most immediate interest and concern the committee had in Bonneville's conservation operations. I have also provided the committee with a single set of submissions which are identified in the outline. Mr. Snell has that set.

Before I begin with how Bonneville implements the council's plan, I will introduce you to the Bonneville Power Administration and its office of conservation. Bonneville was created in 1937 by the federal government to market and transmit the power from the hydroelectric projects that are now operated by the US Army Corps of Engineers and the Bureau of Reclamation in the Pacific Northwest. Those projects were actually begun as jobs projects in the Roosevelt administration during the Depression. They were remote from load centres. The standing joke at the time was that the federal government was creating electric power which there only seemed to be jack-rabbits to consume.

Bonneville built and now owns and operates 80 per cent of the high-voltage transmission in the Pacific Northwest. The mission of Bonneville, from 1937 to 1980, was to market that power, essentially to dispose of a commodity that was surplus to the needs of the federal government and to build the facilities to transmit that power to the markets. In 1980, the agency was assigned a utility responsibility to meet the future growth and demand for electricity in the region by acquiring new power generating resources and by accomplishing conservation measures.

Up to that time, we were simply disposing of what was available from the multipurpose dams that the federal government had built in the Pacific Northwest. Now we have the responsibility for acquiring the power generating and power conserving resources that will meet the future demands in the Pacific Northwest.

We operate with ratepayer funds; that is to say we do not receive appropriations of taxpayer funds as do most agencies. We are entirely self-sufficient. We finance our capital investments through borrowings and we happen to borrow from the United States Treasury but we pay interest rates to the United States Treasury that are higher than Treasury's own cost of borrowing. The US taxpayer is making money on us and we are not subsidized.

The conservation office was created in 1981 to plan, design, test, implement and evaluate the programs that would acquire this load-inducing resource through more efficient use of electricity. We essentially established a sixth line function in the Bonneville Power Administration. There had been five, each headed by an assistant administrator, essentially a line vice-president. This was a sixth. I was appointed to the position of assistant administrator to head this office and I had the opportunity to recruit and

nire the initial staff and to set the first programs into motion.

Just a couple of statistics to help you compare Bonneville to Ontario Hydro. We provide about half the power that is consumed in the Pacific Northwest as contrasted by Ontario Hydro's position of supplying something in the order of 90 per cent or 95 per cent. Our revenues from the sale of power last year were \$2.9 billion on the sale of 121 million kilowatt-hours. The peak capacity of our system is 21,000 of the 41,000 megawatts that Roy Hemmingway showed you on the view graph. We have 14,000 circuit miles of high-voltage transmission and 380 substations.

The plan of the Northwest Power Planning Council, as you realize by now, presents us with a portfolio of cost-effective generation and conservation resources that we can pursue in our mission of providing for the future demand for electric power in the region. The council provides assessments of the technical potential and the reach of the cost-effective development of various classes of conservation and generating resources. The council, in its action plan, makes prescriptions for the capabilities it thinks must be developed in the power system in order to reach the resources in the portfolio.

As Mr. Hemmingway indicated, the plan is a biennial production of the council. Bonneville annually produces a resource strategy that translates the plan and our other obligations--because we have obligations besides the acquisition of new power resources in the region, transmission being the most important--into guidelines that we use for our near-term or operational planning and budgeting. In the course of making that translation, we further develop a characterization of the conservation and generating resources with respect to how they will operate in our system--their energy and capacity effects, their transmission requirements, plant factor, reserve requirements, etc. and the effect that integrating them into the current power system would have. Conservation measures must be fully characterized in the same terms as power generating measures if you are actually to make an apples-to-apples comparison and decide which resources to pursue, among those that might be cost competitive with each other, to meet a need in a particular time frame. In other words, conservation and generation are pursued on a cost-competitive basis.

11:20 a.m.

The resource strategy results in our producing a five-year supply strategy which you might imagine as the beginning of the march down the long-term least-cost path that is generally described by the council's 20-year plan.

One of the attachments I have provided is the BPA conservation projection which is a subsector-by-subsector description of the uses of electric power, the market characteristics as we know them, the feasibility of obtaining savings in those subsectors by Bonneville actions, the approaches we have selected to use to go after those savings to the extent we have already selected approaches, the cost of those saved kilowatt-hours and the budget requirements of those activities. In terms of what Bonneville is planning to do in the immediate future, that is your document of reference.

Our production of work plans and budgets for the coming fiscal year is our system for allocating staff and other resources of the Bonneville Power Administration to the conservation function, as opposed to the other responsibilities of the agency. The agency is mainly limited in its capabilities by staffing limitations that are imposed on us by the national administration.

One of the objectives of the current national administration is reducing the size and scope of the operation of the federal government. We are a federal agency and although we do not use taxpayer funds and therefore do not directly contribute to the red ink they are running down in Washington, we are a part of the labour force that it is trying to reduce. As we operate inside the Department of Energy, whenever the Energy Department receives a personnel cut, we are generally battling within the department with the other agencies to try to maintain our position.

We always maintain that we are different from the other agencies in that we have a utility responsibility in this region. We do not have the ability to say no. We have power supply contracts with every retail utility in the region and those contracts absolutely obligate us to serve to the extent that the utilities call on us to serve. The retail utilities have the best of all worlds. They can call on us or they can choose not to call on us, as they decide it is to their best advantage. That leaves us in one heck of a planning situation in that in addition to all the uncertainties that Mr. Hemmingway discussed. As all of you probably know about in forecasting and deciding on what resources are potentially available to you, we do not exactly know which fraction of the load growth we are going to be serving in the long run.

We think that Bonneville will be the best option and therefore we will be the resource of choice for most, if not all, of the utilities in the region, both those that currently receive 100 per cent of their supplies from us, and those that have significant generating capacity of their own. We are competing in a marketplace in which there are alternatives to Bonneville. If we are not the best value, something else will be. The utilities can build for themselves. One of the reasons we think they will not build for themselves is that they have been so badly burned in building for themselves in the last 10 years.

Of the nine investor-owned utilities in the region, six of them have taken their stockholders to the batons in major power plant construction efforts that have been mothballed or terminated.

Bonneville has taken a hit too in that we are preserving two 75-per cent complete nuclear projects. The 75 per cent of the cost that we have already borne is in our rates. Therefore Bonneville has foisted major rate increases on the Pacific Northwest as have the investor-owned utilities for their own participation in generating projects.

That 3.4-cent retail rate looks pretty low to you, but it is about double what it was just a few short years ago. The fact that rates were so low for so many years in the Pacific Northwest means that the whole economic infrastructure is built on cheap electricity. We use a lot of electricity per capita and doubling or tripling the rates caused a considerable dislocation. Because we use so much--we were rather profligate in our use--we found that there were quite a few ways to use it more efficiently, without incurring a lot of capital cost, just in changing our operations. With very little capital cost, many commercial and industrial operations found they could conserve great amounts of electricity.

So, without Bonneville's assistance, loads flattened out in this region, primarily as a response to the steep increase in prices. Yes, the absolute price is still quite low compared to the rest of the country, but there was a severe rate shock. That effect was felt from one corner of the region to the other.

To the extent that our retail rates or melded cost of power supply in the region is quite low today, and the marginal cost we are looking at for adding the next increment of generation is quite high, we wish, as the supplier, as the shopper for the new resources that will supply the new demand, that the new users and existing users would act as if they were experiencing that incremental high marginal cost of power but they are not.

All utilities in the country buy high and sell low. They are regulated to do that, as do we. That difference between the low average system cost and the high marginal cost is really the operating ground for the conservation program. You can make a pretty good argument for a lack of need to be pursuing conservation measures if electric power were priced at the margin.

We wish that people would take steps to conserve as if they were facing that marginal price. Since they are not, our conservation programs attempt to offer financial stimuli to enable them to jump over economic hurdles that otherwise are standing in their way of achieving the kinds of efficiencies that make sense from the standpoint of the power system.

When we begin a program-design effort, we usually begin with market studies that tell us who is making decisions out there about power supply, how the market is segmented, who we have to go after and to what kind of stimuli they will likely respond. Then we usually determine an approach, or perhaps a set of approaches, and design a program delivery vehicle that targets that decision-maker. We do this through a public process that is fairly elaborate.

The BPA, as does the planning council, engages the people of the Pacific Northwest extensively in our policy-making and our operational decision-making.

It is particularly important in conservation because conservation is not all that different from selling soap. You have to market the product. You have to convince thousands of end users that their investment in energy conserving measures, that is the money they pull out of their pocket, combined with the money you are matching, that we are providing, will make them better off; that they will like it, and that they will feel good about it. It will provide a good return for their investment. It takes the establishment and maintenance of a climate for sustaining that kind of interest in investment that is not initially easily established and must be maintained.

One of the vehicles for maintaining that is to maintain a widespread, broadly popular, conservation ethic in the region. That does exist in the Pacific Northwest after some 10 years of conservation efforts by the utilities, and the last five years' efforts of the council and the Bonneville Power Administration.

Recent poll surveys we have taken show that between 80 and 85 per cent of the people of the region believe that it is important to conserve today to provide the most efficient and least costly power supply for the next generation and that we should be doing this even in the face of near-term surpluses of electricity.

11:30 a.m.

Mr. Snell: I want to stop you there. We had a gentleman earlier who presented some evidence that it was his belief that you could do strategic load-growth programs in some sectors at the same time that you are doing conservation efforts in other sectors. He talked about segmenting the market and targeting certain end uses and that the system efficiency may benefit if

you increase the demand in certain end uses because it benefits the system overall.

But you are now talking about establishing a conservation ethic and consistent message to the consumer and an image of the utility. Do you have any response to the gentleman's comments about the ability to do a whole variety of demand-side activities at the same time?

Mr. Hickok: He is right. It is true of the Bonneville system as well. There are intra-regional loads that we would like to increase. To do that in such a way that it does not collide with your conservation message is tricky but it must be done in such a way.

In the Pacific Northwest, curtailment of use of electricity is not conservation. That is distinguished, even in law, from conservation. Conservation is the more efficient use. Conservation is use. Building an efficient load, because of our near-term surpluses, or perhaps geographically because of the characteristics of the power system, is advantageous in the Pacific Northwest. In the long term, we are interested in efficiencies that reduce our obligation to acquire the alternative, more expensive, usually generating resources down the road that would increase the system cost in the long run.

The gentleman you are referring to was correct but it is not an easy task. It must be done very carefully. It takes some sophisticated survey work and marketing techniques in order to get across the notion of efficient use, strategic load building and strategic load reducing as being all-desirable and being able to co-exist in a single power system operation.

We may operate a number of pilot programs in a given subsector for a couple of years and then evaluate them in order to determine the best approach. We would then take it region-wide in order to aggressively develop the conservation potential of that subsector.

We have a research and development program, a number of demonstration projects and technical support involved with materials and installation specifications that are all extremely important to the program.

The Hood River project you may have heard about is a rather large and elaborate example of the first two. It has the research and development, combined with what is essentially a market demonstration project. There are actually 15 research products coming out of that marketing test.

Hood River has taught us that a well designed, successfully marketed and intensively built conservation retrofit of residential housing can achieve very high penetration. While the energy use data is not in yet to verify the savings, we believe that in Hood River we have developed a cost-effective resource from the standpoint of the cost of the package of measures we put in the houses versus the cost of the 1990s coal plant that is the benchmark for cost effectiveness in the Pacific Northwest, according to power council.

Mr. Snell: What is the community's attitude towards that project?

Mr. Hickok: The community attitude is critical to the success of a project such as this. Before the project was ever announced, we surveyed attitudes about energy and other things that would relate to the success of such an intensive project. We found out about community values. We then organized the project so it related directly to those values. We took

advantage of them to achieve the end product that we desired.

The community came to have great pride in the project and it was quite directly involved through the operation of a steering committee made up of civic leaders in the community. They were involved in the planning and actually the mechanics of the operation of the program. In two years' time we did retrofit 92 per cent of all the electrically space-heated houses in Hood River county.

One message I would leave with you, which is perhaps more important than anything else I will say this morning, is that evaluation is the key to the utility treatment of conservation as a power resource. We do two kinds of evaluation at the BPA. We do energy and capacity impact evaluation and that essentially provides conservation's meter. Since conservation is the nonuse of the commodity you are selling, it can be rather tricky to measure your effect and to know what your effect is net of other stimuli that may be causing people to consume more or less electricity. Obviously, there are price-induced effects that are going on alongside Bonneville's program effort. We want to know what Bonneville's effect is net of that other activity.

For example, in the weatherization program, we have a set of control homes that never were in the program with us; they never responded to our invitation.

Mr. Sargent: What do they have to do to get in the program?

Mr. Hickok: To take advantage of the program, a home owner would call his or her local utility and ask for an energy evaluation of the home. The energy evaluation produces a set of recommendations for the retrofit measures that would be cost-effective in that home. The home owner frequently has the option of allowing the utility to arrange for a contractor to take care of it, or he or she can select the contractor. Very often, two or three competitive bids are required. The utility goes back and inspects the retrofit to make sure it meets Bonneville's specifications. We cover, on average, 75 per cent of the cost of the retrofit and the home owner contributes about 25 per cent. The home owner's payback is pretty quick.

Mr. Sargent: What percentage of them take advantage of it?

Mr. Hickok: It varies. There are 110 utilities, of the approximately 125 in the region, that are delivering the Bonneville program. Some utilities, in the period since 1981 when we began weatherization, are reaching about the 50 per cent level of saturation of the available market among their electrically space-heated housing. Others have not achieved nearly that much.

The experience generally is that the first 20 per cent is pretty easy to come by. Those are the fairly well educated people with a fairly large disposable income who respond first to advertisement. It then becomes more difficult and you do have to sell the program. You have to market it. With low-income people, you are into a whole additional set of difficulties. We take a number of aggressive extra steps to market to low-income people, including paying 100 per cent of the cost and requiring no matching share from the low-income people.

Mr. Sargent: Is there a ceiling on the dollar amount?

Mr. Hickok: Per house? The amount of dollars we are willing to spend is determined by the cost-effective measures that are recommended. We actually

do an examination of the current heat-loss characteristics of the house and we know roughly what will be saved by taking individual measures. We recommend up to the limit of our cost-effectiveness and then we make available the matching money.

11:40 a.m.

In our evaluation program, we have a set of experimental houses. These are the houses that got into the program and were weatherized by us. We have been tracking them over time. For the last three or four years, we have been watching the consumption characteristics of the control homes and the experimental homes. One of the interesting first things we found out was that there was no takeback effect among the experimentals.

It was largely supposed that if you help people to become more efficient in their use of electricity, they will once again turn up the thermostats and begin heating the back bedroom and you will lose some of the savings you anticipated, given the characteristics of the use prior to weatherizing the home. Our experience was that, in fact, the opposite took place. The consumption in succeeding years, after the year following weatherization, was progressively lower. We are going back to find out exactly what this is due to but we suppose it means that these people are continuing to take energy-conserving measures themselves, beyond what was initially done for them by the program.

We have also followed the control houses. Initially, in the early 1980s, these houses showed decreased consumption as well. That is, independently of our programs, they were taking measures in response to what was going on with prices in the late 1970s and early 1980s. We think that is levelling out now. However, we will know better over the next couple of years as we continue to look at them. What we claim as the program's effect, and what we claim as the savings that we use when we calculate a levelized, life-cycle, mills-per-kilowatt-hour figure, is the net of the saving effect of our weatherization of the house minus the energy-conserving activities of the people in the control homes.

The other evaluation we do is process evaluation. We are concerned with the administrative efficiency of the program because it can be as much as 20 per cent of the cost of obtaining the investment in, and installation of, the conservation measures. We are interested in the productivity of the program delivery components and the best available use of both Bonneville and contractor capabilities.

We take the results of both our energy and capacity impact evaluation and our process evaluation and we feed that back to long-term planning and our short-term program design and operations. The establishment of these feedback loops is absolutely critical. We try to get an early fix on whether these programs are operating according to our projections, our hopes and expectations. If they are not, we go in early to try to correct for that. If our estimate of what it is going to cost to actually mine the conservation savings in that end-use sector is way off, we will have to go back and rethink our planning in that sector and determine what the cost-effective reach of the energy conservation development can be. This will affect the mix of energy-conserving and energy-generating resources that we will be relying on in the future.

Our process evaluations tell us much about our own efficiency. We do not do those with internal staff. We contract for them because we want a third

party to go out there and criticize us. We find that a third party, dealing with our contractors, can often find out things about us that we cannot find out by dealing directly with our contractors, who are rather concerned about serving the people who are providing them with a living.

Mr. Snell: Excuse me, Mr. Hickok. I would like you to address some concerns at this time as they are very pertinent to your remarks now. They are concerns raised by planning personnel at Ontario Hydro. They identified four major uncertainties of demand-type programs, conservation programs primarily: the timing, the cost, the penetration rate and the impact on the load shape. Is this what you are talking about in these feedback mechanisms; an early assessment of the program and whether it is having the predicted effect?

Mr. Hickok: Yes, absolutely.

Mr. Snell: They say the uncertainty is very high and it is a limiting factor.

Mr. Hickok: You have to eliminate or reduce the uncertainty. Most utilities in the US do not rely on conservation on a planning basis. They may do it. They may weatherize houses or wrap water heaters. They can probably tell you how many houses they visited and how many water heaters they have wrapped but they cannot tell you a doggone thing about what it did to their system. Therefore, they say: "It is soft; it is unreliable. Besides which, you do not know whether people are going to take you up on it."

If you are going to actually plan demand-side activity and achieve demand-side effects, and if you are going to rely on that on a planning basis, you have to harden that soft path. If you are making substantial investments on the demand side, it better reliably produce the predicted effects or you are in trouble, because presumably you did not make the alternative investment on the supply side that would have provided for the same need in the same time frame. If you are going to proceed confidently with a program that integrates supply-side and demand-side activity into one resource development activity, you have to harden that soft path. You have to be able to develop the conservation potential in a reliable, predictable, cost-effective way. The key to that is evaluation and the uses you make of that evaluation.

There is a short note on the history of Bonneville's conservation operations to date. In 1981, we launched six acquisition programs. We call them acquisition, as opposed to capability building programs because they were actually put out in the field on a region-wide basis to knock megawatts off the power system's consumption as rapidly as possible.

In 1981, we were still operating against forecasts of large, near-term needs for electric power. We were under a lot of pressure to move as rapidly as possible on the demand side because it was viewed that the supply-side response would not be adequate; that is, 13 new thermal plants in a 10-year period were not going to keep up with demand.

Our early focus in these programs was on residential. This was not because we thought residential presented us with perhaps the most cost-effective early resources or because there was more to develop than in commercial or industrial. We started in residential because we had role models to look at. There were utilities that got to conservation development as a power resource before we did, which had been operating residential programs and on which we could model a residential effort. In 1981, our interest was trying to adapt something we found already existing among a number of utilities around the US and applying it in the Pacific Northwest as rapidly as we could.

Mr. Snell: Are you saying that the experience of the residential conservation programs, as opposed to industrial, is somewhat transferable?

Mr. Hickok: Yes, the experiences of residential and commercial are quite transferable. Industrial tends to be awfully specific to the kind of industrial structure that you have. Even within a class of industrial customers, such as pulp and paper, we find the individual deployments in individual pulp and paper plants can be quite different. Therefore, it is hard to prescribe generic electric power conservation measures that would be able to be prescribed industry-wide. That has greatly complicated our resource assessment. How much is out there, at what price, and how do we go get it in the industrial sector? Based on our early experience in the industrial sector, we are going back to redesign our whole strategy of operation there.

11:50 a.m.

In two years, from 1981 to 1983, we accelerated from expenditures of roughly \$16 million on the whole conservation front to \$250 million in 1983. We nit the conservation accelerator hard; we pushed it to the floorboard, and found that if you do that, you can get quite a response.

In 1983, the Northwest Power Planning Council and BPA were putting out load forecasts showing that not only were the feared deficits not around the corner but it looked as though extended surpluses were the order of the day.

Mr. Snell: What is \$250 million as a percentage of your revenue?

Mr. Hickok: Our annual revenue is \$2.9 billion. Capital investment would probably make up 80 per cent of that \$250 million. We would borrow that. What you actually see as a revenue requirement in rates would be the debt service on 20- to 25-year bonds that we sell to the US Treasury. So far, the impact of the conservation program on Bonneville's rates is very small.

Mr. Snell: Is that \$215 or \$250 million?

Mr. Hickok: It is \$250 million.

Mr. Snell: That means you capitalize about eight or nine per cent of your gross revenues in a year in conservation.

Mr. Hickok: Our response to the revised forecast was to replace the existing conservation programs. They were running far too fast. We were essentially constructing the weatherization power plant so that it would be fully on line, producing its maximum effect of some 300 average megawatts much too soon. We wanted to replace the construction of the weatherization power plant. That is exactly what we did. We provided a two-year transition for the utilities that were operating that program to scale down to a level that we would be willing to sustain for the long run to the completion of construction of the weatherization power plant.

The conservation program is a power supply program. Need for power drives the program. In that case, it was driving it down. Where to put the weatherization program was not an easy question to answer. We looked at what we thought the cost would be of stopping the program and trying to restart it later, and what it would take to rebuild the capability that we had built over the three-year period from 1981 to 1983. In other words, what do you do to the infrastructure? If you stop the program, you tear it apart and then you presumably have to rebuild it again some time down the road. We looked at what

it would do to marketing of that program and marketing conservation in general and the ethnic we were trying to preserve in the region.

The utilities that were running the program were faced with customer relations concerns. The operation of a utility-run program has to make customer relations sense. It has to make sense from the standpoint of the utilization of the utility's staff resources. Some utilities, particularly those serving rural areas, were interested in maintaining at least enough installers to ensure a competitive situation. They were afraid of having a single installer running up costs in the program. All of these things were considerations we took into effect when we repaced the program.

Essentially, we set a floor--a minimum construction pace. We are operating weatherization at about \$50 million a year in the region today.

Mr. Sargent: Did many consumers resent the support that the others got?

Mr. Hickok: Are you referring to the neighbour of the owner whose home was weatherized under the program?

Mr. Sargent: Yes.

Mr. Hickok: There was some initial resentment of it. Our surveys tell us there is less resentment over time. First of all, it is available to the next-door neighbour to the extent that his house is also electrically space-heated. Let us assume that his house is not electrically space-heated but he does have an electric oil and he cooks and lights with it. We do not feel that we have to apologize to that person because, in the long run, our weatherizing his neighbour's home is going to keep lower the cost of the power supply that drives the rates he is paying. The least system cost is the objective of our whole power supply development program. That is the way we plan.

Mr. Sargent: Are you going to extend it right across the board?

Mr. Hickok: We are continuing to do weatherization at a pace of about \$50 million per year. We will do it until we complete it.

Mr. Charlton: To make your last comment totally clear, you are saying that, although the person who was involved in the weatherization program got a greater benefit than the neighbour who did not benefit from it because he had another source of heat, there was still a benefit for that neighbour.

Mr. Hickok: Exactly. A real, positive benefit.

Mr. McGuigan: Do they see that as a benefit?

Mr. Hickok: It is a long-term benefit. It is something we have been marketing as an idea for the past five years. It was begun before we got involved by a number of utilities in the region that started weatherizing homes as early as 1976. The largest utility in the region, Pacific Power and Light Co., pioneered weatherization as a power resource in the United States. Conservation is quite well understood and so is its value, even though it is a long-term value. As I mentioned before, between 80 and 85 per cent of people believe it is important to invest today to ensure a lower-cost power supply in the future. The ethic is solid.

When we replaced the acquisition programs, we also shifted emphasis to capability development. Mr. Hemmingway mentioned that briefly. Rather than attempting the early region-wide approach to the major subsectors of electric power consumption, we finally had the luxury of some time to sit back and soberly plan and stage the conservation effort in those areas. In other words, there was not the crying, near-term need that impending large deficits would propel you to take rather large steps to respond to.

Therefore, we began to move to develop that capability in each of the subsectors. That conservation projection document describes how we have done and are doing and staging that, and particularly what the activities will be in the next five years, subsector by subsector. It is a quite determined, steady march. It is about a \$135 million per year proposition to run the existing acquisition programs, including weatherization, and to move in these other subsectors where we were still only operating demonstration projects or pilot programs.

Those demonstration projects and pilot programs produce savings, so it is not as though we are getting nothing for the money we are spending there. We do not know we are spending it as efficiently as we ultimately will. We are making some mistakes and having some dry holes. However, the dry holes we experience in conservation are nothing like the ones we have experienced in nuclear. As I said, we do have the luxury of some time to test and evaluate before we plunge in with relatively large capital expenditures.

12 noon

With respect to our current operations, one of the attachments is a brief single-page listing of 36 programs: regional programs, pilot programs, demonstration projects and some site-specific industrial projects that are currently being operated in the region. In addition, there are about 30 research projects. Our budget for the seven-year period from 1985 to 1992 averages about US\$125 million per year in 1985 dollars.

The capital expenditure part of that budget over that seven-year period will be about US\$95 million a year, again in 1985 dollars, meaning we are expensing \$30 million a year against current rates. That \$30 million a year is exclusive of the debt service we are currently carrying on the conservation borrowings to date, the borrowings we have made since 1981 for the capital expenditures in the program we have made since 1981.

In terms of the conservation capital program, as a fraction of the whole Bonneville capital investment program, total new capital investment in that seven-year period that creates long-term obligations of Bonneville, in addition to power system and related facilities, will average about US\$335 million per year in 1985 dollars. The conservation capital program is a little less than a third of the total capital facilities investment program of Bonneville Power Administration.

Total capital investment includes new power facilities at existing dams, continued preservation of the two mothballed nuclear plants, the conservation program, transmission facilities and also fish and wildlife mitigation facilities. We are paying for some of the effects that have occurred since the 1930s on fish and wildlife in the course of the development of the Northwest power system.

In terms of staff requirements, the conservation function requires 700 people directly at Bonneville and among Bonneville's support services

contractors. We would probably employ those 700 people in-house if we were not constrained by personnel ceilings. We rely to a great extent on support services contractors. For every one of us, there are four or five of them working very closely with us in the program. In some cases, they are not even very distinguishable from Bonneville staff. As a fraction of the total agency employment in direct employment and support services, since the total agency would be nearly 5,000, it would be 700 as a fraction of 5,000.

Bonneville still looks much like the old transmission facilities construction outfit it has been since the 1930s. The transmission design, engineering and construction function is mostly in-house and probably commands 800 or 900 employees. The operation and maintenance of the power system, directly in-house, comprises probably another 1,200 employees. These are the people it takes to operate that 80 per cent of the high-voltage transmission grid that is Bonneville.

In addition to this employment, the direct and support services employment, our acquisition contractors--in the case of the weatherization program, that is the 110 utilities and four states, because four states augment the utility effort in the low-income sector--

Mr. Sargent: Are those utilities municipal?

Mr. Hickok: They are municipal. They are public utility districts, which are also government creatures. They are rural electric co-operatives, owned by the people they serve. In some program areas, they are investor-owned utilities, so it is the whole spectrum. A program deliverer for Bonneville does not need to be a utility. The four states are delivering several programs for us, and local government units are delivering programs for us, as are energy services companies in the private sector.

The total additional employment among those that are currently delivering the region-wide programs is probably another 1,000 in the region. For employment beyond that, the installation subcontractors, the architectural and engineering firms and all the indirect employment involved with conservation, we contracted a study from Charles Rivers Associates and I have supplied that as a submission to the committee.

Mr. Haggerty: You do not have many engineering staff on hand. You contract it all out to the utilities.

Mr. Hickok: We have plenty of transmission engineering in-house. We have very little conservation engineering in-house, and conservation is an engineering proposition to us.

Mr. Haggerty: What about plant design? Is that all farmed out to contractors?

Mr. Hickok: Do you mean transmission?

Mr. Haggerty: No, the generating plant facilities themselves. Is this done by in-house engineering or by contracts?

Mr. Hickok: Our acquisition of generating resources is entirely out of house. In fact, we do not have a legal authority to build and own these facilities ourselves. We have to acquire their output or capability. We have to solicit a project developer's response and that is what we are doing. We solicit competitive responses and select among the offerings made to

Bonneville. It may be a utility's proposal to build a power plant for us; it may be a nonutility developer. A lot of the smaller-scale resources, low-head hydro, cogeneration and the like, are being proposed for our acquisition by nontraditional electric power producers.

Essentially, what we have in the region is a deregulated bulk power supply system in which Bonneville is a wholesale shopper. We buy the most cost-effective. We put out a request for resources. We say: "We need about this much in this time frame. What do you have to offer us?" Developers come in and propose plants to us. We then enter into contracts with them to acquire the output or capability.

We can stand the dry-hole risk in a capability contract, that is, we have the ability to put the region's ratepayers behind a project, or that risk can remain with the developer. Some developers choose to take that risk and they get a better price from us. It is a matter of market forces.

Mr. Haggerty: Are there any other utilities in the US that go your route and say: "If you want to design and build a plant, you must go outside. You call in bids or tenders and they provide it from there. They design the plant for you." I imagine where General Electric is involved in the eastern part of the United States, it probably designs it.

Mr. Hickok: There are none that I am aware of. Most utilities design and build to own themselves, although they often contract for some parts.

Mr. Haggerty: Is there any regulatory commission that reviews the design of these plants? I know there is with nuclear. What about the fossil fuel and hydro generating plants? Is there any elected body or government agency above that which says, "We want to take a look at these designs"?

Mr. Hickok: There are state facility-siting bodies that are concerned with where you are going to locate, the appropriateness of that location and what you are going to put there. The state siting laws govern in the case of power projects that are going to be offered for Bonneville's acquisition. If Bonneville had the ability to build and own, it could exercise its federal eminent domain power and site practically anywhere, but it does not have that authority. It was consciously not given to us.

Mr. Haggerty: Why was that?

Mr. Hickok: The region wanted to preserve a powerful state role and did so through its congressional delegation, which greatly influenced the law that was passed in 1980. It did that by preserving most of the facility-siting authority, the creation of the power planning council which, as appointed, is a creature of four governors, and in a number of other ways.

12:10 p.m.

You could quite easily imagine a nonfederal entity operating in the niche in which Bonneville currently operates. It is largely an accident of history that Bonneville happens to be a federal agency. It is because there were works project administration efforts in the Roosevelt administration to build big dams. They needed something to create markets for the power and take the power to market.

Bonneville came to occupy this transmission niche but something else would have if it had not been Bonneville. Then, over time, Bonneville came to

embody a number of resolutions to power planning and operating problems in its operations. Finally, in 1980 our role, or the institution, was expanded to this classical utility function of finding the next increments of power supply.

Mr. Haggerty: Maybe this is the avenue this committee should be looking at, to go outside Hydro for design of these plants. Of course, they are capable down there--

Mr. Chairman: We are straying considerably.

Mr. Sargent: One more thing here--

Mr. Chairman: No. We should let Mr. Hickok complete his presentation.

Mr. Sargent: Okay.

Mr. Hickok: I am about five minutes from completion; perhaps less than that. The last part of my outline lists issues. They are issues for us and they may not be issues for you. It might be best if you look at those and tell me what you would like to hear discussed.

One of them that came up in Mr. Hemmingway's presentation was the model conservation standards established by the council and the surcharge threat and enforcement. As Mr. Hemmingway indicated, there is quite a straightforward explanation and rationale for surcharges. As a matter of fact, Bonneville has always had the ability to identify a class of customers that was causing us to experience costs that are arguably in addition to costs we ought to experience, and to charge a separate rate; in other words, to surcharge or to channel those costs at that particular class of customers rather than have all the customers bear the increased cost of one group's activity.

The council was given the authority to establish standards. It established very aggressive standards in the consumption of electric power in new residential and commercial structures. To the extent that jurisdictions do not adopt and enforce those standards or somehow achieve equivalent savings in those buildings through some other means, the council is recommending that we surcharge our customers. They in turn would pass that surcharge through to the jurisdictions that are allowing buildings to be built that are significantly beneath the efficiencies that power system life-cycle economics dictate. That is not uncontroversial, despite the fact that the justification is straightforward.

I am sure actually levying the surcharge will be something akin to exploding a nuclear device in the region because 10 per cent on the electric power bill of the jurisdiction is a hefty amount of change. As I say, the model standards are aggressive enough that they are forcing building practice to move significantly away from current practice and towards practices that are much more energy-efficient. As you can imagine, the construction industry is not at all comfortable with moving rapidly away from what it knows and what it argues it does best.

Bonneville has a number of programs that are designed to assist the industry to move. We are involved with a lot of technology transfer, education and training. We are also offering significant financial incentives to builders to help offset the first costs involved with building to those higher standards. In the long run, we do not think we will have to do that, but in the short run, builders are faced with significantly increased costs. They are worried about whether their houses will still be marketable compared to those

from builders who are not yet building to those levels because the codes are not yet in effect in their region and are not required to be in effect until 1989. Behind the model standards the council has set, Bonneville's objective is to try to move building practice through positive means as far as we can by 1989, the deadline date, when virtually everything is to be built to those high standards.

I leave it to the members to ask questions for the remainder of the period before our growling stomachs compel a recess.

Mr. Snell: Is that a hint?

Mr. Hickok: No, I am prepared to stay as long as you like. I am not compelled to leave early this afternoon either.

Mr. Chairman: Perhaps I can clear up one point before we go to the committee members. On the question of the surcharge, let me draw a comparison to something we do here, where municipalities levy a sewage treatment rate on an individual taxpayer based on water consumption. Is that roughly what you are talking about, that if you use more water it is probably going to run into the sanitary sewer and you are charged accordingly?

Mr. Hickok: The answer is yes, to the extent that the municipality is upgrading water or sewer service to a particular part of the municipality and is saying to the homeowners: "We have to assess you for the upgrades we are making to the system that serves you and, therefore, we are adding a surcharge to your bills. We are not going to charge the rest of our municipal customers that cost. We are not going to spread it over everybody else." That is a perfect parallel. To the extent that it is spread to everyone--some municipalities extend services and keep the entire cost melded in the system--there is no parallel.

Mr. Chairman: Some tangible benefit has to accrue to those in the area who are participating in the program in order to say there is a tangible penalty for those who do not participate.

Mr. Hickok: To bring it back to electric power, the benefit to the local jurisdiction would be the long-term reduced-cost power supply. To the extent that they are not taking actions that keep the power supply less costly, then because they are not building to the model standards, rather than spread the increased costs of having to add generation to the system to serve these people we will channel the additional costs to those folks. We will do that rather than make the rest of the power system pay for adding that generation.

We are not trying to discourage load growth or new users. A jurisdiction may be growing wildly. There may be lots of new housing starts and quite a lot of electrically space-heated housing. That is not bad. We are interested in the housing being efficient and we are interested in the jurisdiction adhering to the standards. To the extent it is not and we do not surcharge it, everyone else will pay a penalty.

Mr. Chairman: Is the surcharge levied by the utility?

Mr. Hickok: It is levied by us on our power supply. In turn, the utility buying power from us pays it. In turn, it has to levy the surcharge on its customers.

Mr. Chairman: To keep it within a framework of fairness and equity and so on, what about the sectors of a community, the houses or businesses, that are not using electricity for space heating? Are they penalized for failing to take conservation action?

12:20 p.m.

Mr. Hickok: It is up to the utility or regulatory body that regulates the utility, which is not us. We identify the subset of that utility's customers that is causing us to experience higher costs. The size of the surcharge is determined by the size of that body, and therefore the surcharge the utility feels is proportionate to that group of people. It is the utility's business how it charges its customers, whether it focuses the whole surcharge on that group, or spreads it over its whole service area or over one whole class of customers.

Mr. Snell: Would it be ideal to assess the development company, the construction company, that builds the inefficient building, or is it not possible for you to do that given the system, so you figure the best way to do it is through the utility?

Mr. Hickok: From the standpoint of the power system, the best outcome for this model conservation standards exercise we are going through in new buildings standards would be to have all the standards adopted by the code-setting political jurisdictions, which are local units of government. In some cases, it can be done state-wide and probably will be done state-wide. This assures us that the savings will be obtained, and probably more reliably and effectively, than if we had to take some other action to ensure it was happening in the absence of codes. We are greatly interested in trying to obtain the co-operation and assistance of the code-setting bodies. We have quite an ambitious undertaking going on with them as well as with the builders.

Mr. Sargent: As to your capital investment, you mentioned the preservation of two mothballed nuclear projects. How did you do this, why, and to what extent? Are they still radiating? How do you mothball them?

Mr. Hickok: They were never completed. They were never loaded with fuel and there are no radioactive parts. They are both about 75 per cent complete, at which point we stopped construction on them. We ordered the Washington Public Power Supply System, which was building them for us, to stop. We have essentially built a fence around them and we are trying to preserve the assets that they represent to us--

Mr. Sargent: For future use.

Mr. Hickok: --until it is time to restart. To date, it does not look as if we should restart construction before 1992. It costs us about \$24 million a year to preserve them and keep them in a state that does not allow them to deteriorate so that we can begin construction and complete them; in other words, we maintain the licenceability and operability of the project. You can look at it as preserving an option and the option costs \$24 million a year. The kind of analysis Mr. Hemmingway showed you tells us that it continues to be prudent to spend that amount to preserve those assets so they can be restarted.

Mr. Sargent: That is \$2 million a month. Is that for guarding them or what?

Mr. Hickok: No, it is for more than guarding them. You have to maintain them.

Mr. McGuigan: Heating them would be--

Mr. Hickok: Yes. They have to be sheltered. Mr. Hemmingway mentioned that a roof was not over one of the control houses and containment vessels yet, and we had to construct shelters for that. They have to be kept dry in some cases. Some small engineering effort continues to keep up with changing regulations and to assist us in restarting and constructing the most cost-efficient plant we can when it comes time to do it.

Mr. Brandt: How large is that plant?

Mr. Hickok: They both have a capacity of about 1,200 megawatts.

Mr. Brandt: What was the estimated cost on completion? At what stage were you when you shut it down?

Mr. Hickok: We had spent \$7 billion on them. We expected to spend \$10.5 billion.

Mr. Brandt: You were close to 70 to 75 per cent completed.

Mr. Hickok: Yes, and that is exactly the way they look. There is a major facility out there on two different sites in the Pacific Northwest.

Mr. Brandt: Given the best information you have at the moment, how long do you anticipate the plant will be mothballed? Obviously, you expect it will be open at some future point, but are you looking at five, 10 or 20 years? What is the period?

Mr. Hickok: We are not looking at construction restarting until 1992 at the earliest.

Mr. Brandt: Will you briefly outline the major reasons the plant was mothballed?

Mr. Hickok: Need for power is 99 per cent of the answer.

Mr. Brandt: Were the earlier projections wrong?

Mr. Hickok: Quite wrong. We were constructing them on a schedule that was to bring them on line in 1986 and 1987. We now have firm surpluses on our system of 1,500 average megawatts.

Mr. Sargent: Would it not be because of public opinion?

Mr. Hickok: No.

Mr. Brandt: That is partly what I was getting at.

Mr. Hickok: Public opinion was divided. The plant we were constructing on the Hanford nuclear reservation was quite popular. Nuclear power has been a feature of that part of the world since the 1940s. However, popular sentiment was against the construction of the plant in western Washington. A restart would be controversial.

Mr. Brandt: You mentioned the surplus you had. What is that as a percentage of your total output?

Mr. Hickok: The average Northwest consumption is about 15,000 average megawatts. This is another 10 per cent. In addition to that we had huge capacity surpluses, as you can imagine, looking at the installed capacity of the region at 41,000 megawatts.

I mentioned we had to repace the weatherization program. The question was whether we should mothball the weatherization power plant. It too was under construction. We went to the same analysis with the weatherization program. Does it make sense to continue construction? Should we shut down construction in favour of later restarting? What costs and difficulties do we face either way? We elected to mothball the two nuclear projects and not to mothball the weatherization program, but it was a very similar analysis and question. We continued to construct weatherization at what we believe is the minimum construction pace that makes sense.

Mr. Brandt: There seems to have been a tremendous number of nuclear plants that were mothballed in the United States during a specific time frame. The reasons for those mothballing activities vary quite widely. I think my colleague, Mr. Sargent, is correct in stating that some of them were mothballed because of public opinion, Three Mile Island and opposition to nuclear power. You are saying in your case it was virtually all because of a lack of need for the plant at the time.

12:30 p.m.

Mr. Hickok: For the two plants we were financing, I believe that is true because we were not necessarily experiencing a difficulty with continuing to finance those projects. Financial difficulties got many utilities in the country in grave difficulty, including several in the Pacific Northwest that were constructing independently of us. I believe much of the popular sentiment against nuclear power has as much to do with its cost as with nuclear waste. If we could have brought those projects on line and on budget we would not have nearly the reaction in the country and it would not be nearly as difficult to build them as it is today. It nearly bankrupted a number of major power companies in the US.

In addition to building three plants for us, the Washington Public Power Supply System was building two on its own. It defaulted on \$2.4-billion worth of municipal bonds.

Mr. McGuigan: That was the first time in the history of the US.

Mr. Hickok: No. I think Cleveland defaulted as did New York city at one point. However, this is easily the largest. Cleveland and New York have cleaned up their acts since but the Washington Public Power Supply System has not.

Mr. Brandt: What is the bond rating of WPPSS at the moment as a result of those problems?

Mr. Hickok: With Bonneville standing behind it, its bond rating is pretty decent. I do not think it could sell a bond without us.

Mr. Brandt: Is it A?

Mr. Hickok: It is out of the market. The termination of the fourth and fifth nuclear projects of Washington Public Power Supply System came about largely because Wall Street would not have anything to do with it any more. The bonds that were sold for the first, second and third plants are good. We are standing behind them; we are servicing the debt and we intend to continue to do that. Anything Bonneville stands behind in the future will have to look pretty good. We are a big outfit and we can stand most of the ratepayers in a region behind a project. We have a lot of revenue-raising capability.

Mr. Brandt: Does that get you up to triple-A?

Mr. Hickok: Are there any triple-A utilities left in the US? I do not think there are. We would be as close to that as anybody.

Our principal problem is legal difficulties associated with the continued litigation over the supply system default. The bondholders have made a number of runs at the supply system and Bonneville and the participating utilities in the fourth and fifth projects, with which we were not involved, in order to try to attach other assets. The terminated plants are all the assets that WPPSS 4 and WPPSS 5 represent and there is nothing there but some concrete and metal that is not worth anything. Naturally, you go after something that is worth something; for example, the first three plants, Bonneville or the rest of the utilities and all their facilities in the region.

We are all subject to and targets of some of the most massive and complex litigation you can imagine and it will continue to go on for a while. That will affect our bond rating to the extent they felt we are exposed to some kind of settlement or court decision that would somehow involve our rates. So far, the court decisions that have come down in the WPPSS-related legal proceedings have preserved the separate nature of the first, second and third plants and Bonneville's relationship, and have almost totally divorced Bonneville from being reached over the default of the fourth and fifth plants.

Mr. Charlton: On the question of your bond rating and whether or not there are any US utilities at triple-A, you mentioned earlier that you borrow from the US Treasury but not at its rate of borrowing; you borrow and pay a profit to it. If you were able to borrow from the US Treasury at its rate of borrowing, what would that do to your bond rating?

Mr. Hickok: We would not need a bond rating. If we were not borrowing from Treasury but we were selling securities in the open market--

Mr. Charlton: No. If they borrowed on your behalf, as Ontario Hydro does?

Mr. Hickok: The situation now is that we have the authority to finance our transmission facilities, conservation measures and fish and wildlife facilities through bonds we sell to the US Treasury. We do not have the authority to issue bonds to Treasury for generating projects, with the exception of those that employ renewable resources. By selling bonds to Treasury, we are directly financing everything except large thermal projects, which have to be financed by the entity that is building them. When they go to the credit market, if they have a contract from Bonneville, a taker-pay contract or a capability contract that says we will stand the dry-hole risk, they have to look like an awful doggone good security.

Mr. Charlton: That is what I was getting at. If your bond rating was triple-A, you would be able to pass that on to those who were developing.

Mr. Hickok: Yes, largely; to the extent they were not complicated by some other exposure they had.

Mr. Charlton: If you could sell your bonds to the US Treasury at its rate of borrowing as opposed to above it, which you are presently doing, how would that affect your bond rating?

Mr. Hickok: I do not believe it would affect it. We are only paying a little more than one quarter of one point over the US Treasury's cost of borrowing, and US Treasury security is pretty good. Our cost of borrowing is very little different from Treasury's. It is a little more, but it is between one quarter and one half a point.

Mr. Charlton: Do you know what your rating is now?

Mr. Hickok: Since Bonneville itself does not borrow, we do not sell our bonds in the open market. We sell them all to Treasury. Wall Street never sees them and the rating houses do not have to rate them. Treasury buys them. It is required to buy whatever we issue.

The most recent example of financing of a Bonneville program by a third party would be the experience of the Eugene Water and Electric Board financing our weatherization program for us. It went to the market with bonds we were backing with a contractual instrument that had us standing behind and guaranteeing the debt service. I believe the board was triple-A.

Mr. Richmond: A small point of clarification: You mentioned by 1989 the new building standards will be mandatory and the Northwest plan has given the authority to levy surcharges. It is unclear. To date, to what degree have you slapped surcharges on people?

Mr. Hickok: We have not reached 1989 yet. To date, it is a process of trying to get people to the point where they do not have to be surcharged in 1989.

Mr. McGuigan: It is a threat.

Mr. Hickok: Exactly. At this point, it is a threat. The council does not have the authority to mandate a standard; that is, to require political jurisdictions to adopt codes. To the extent that jurisdictions do not, they are exposed to the surcharge threat.

Mr. Moore: You mentioned that underlying the conservation program is the high marginal cost, the high cost of building a new generating station. Can you give us a little more specific information about what you use or what you are projecting? I am assuming it is the next generating station that produces the high marginal cost. What is the cost?

Mr. Hickok: The council uses--is it four and a half cents?

Mr. Hemmingway: It is four now.

12:40 p.m.

Mr. Hickok: It is four cents per kilowatt-hour, levelized life cycle cost, 1985 US dollars, for a coal plant coming on line in the late 1990s. That is the benchmark. You can accomplish a lot of conservation at the same at less cost to the power system.

Mr. Moore: You are not looking at a marginal cost that is dramatically higher than your average cost at this time.

Mr. Hickok: It is dramatically higher. Our wholesale rate to our utility customers is two and a half cents.

Mr. Moore: Sorry, I was looking at the old retail rate.

Mr. Hickok: That is three and a half cents, but that takes into account the utility system's cost of operating and maintaining the distribution system and the rest of the power-related services it provides. Bulk power from Bonneville is two and a half cents.

Mr. Chairman: Thank you very much. We stand adjourned until 2 p.m.

The committee recessed at 12:41 p.m.

A24N
XC 2
85N22

N-50

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

WEDNESDAY, APRIL 16, 1986

Afternoon Sitting



SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Ashe, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, K. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Poisinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitutions:

Brandt, A. S. (Sarnia PC) for Mr. Jackson
O'Connor, T. P. (Oakville PC) for Mr. Gordon

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy
Snell, B., Consultant; with Canada Consulting Group Inc.
Ward, E., Research Officer, Legislative Research Service

Witnesses:

From the Ontario Natural Gas Association:

Pinnington, P. E., Managing Director
Howe, R. J., Counsel; with Aird and Berlis
Aiken, J. L., Chairman; Senior Vice-President, Accounting and Regulation,
Consumers' Gas Co. Ltd.

From Energy Probe Research Foundation:

Rubin, N., Director, Nuclear Research
Poch, D., Counsel

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Wednesday, April 16, 1986

The committee resumed at 2:04 p.m. in committee room 2.

ELECTRICITY DEMAND AND SUPPLY
(continued)

Mr. Chairman: Come to order, please. We will get started with the Ontario Natural Gas Association. Mr. Pinnington, you will make the introductions.

ONTARIO NATURAL GAS ASSOCIATION

Mr. Pinnington: Thank you very much, Mr. Chairman, and good afternoon to you and to the select committee.

My name is Paul Pinnington and I am the managing director of the Ontario Natural Gas Association. Accompanying me to my right is John Aiken, who is the chairman of the association. John, in real life, is the senior vice-president of accounting and regulation for the Consumers' Gas Co. On my left, is Robert J. (Bob) Howe, who is association counsel and a partner in the firm of Aird & Berlis, barristers and solicitors. We are pleased to be with you today and thank you for inviting us to appear before this committee.

On behalf of the members of the association we have prepared a brief, which I will ask Mr. Howe to take us through. Copies of the brief have been provided to committee members. With your concurrence, Mr. Chairman, I propose that my colleagues and I respond to any questions at the conclusion of Mr. Howe's presentation. The brief, along with reference materials, has been provided to the clerk. A copy of the brief is in the hands of Hansard and additional copies are available to interested parties here present.

We do not intend to use visual aids this afternoon. We believe that due to the nature of our document, the information is best conveyed to you by following the text itself. We respectfully suggest that this procedure will also assist in focusing any questions members may have. With your permission, Mr. Chairman, I would ask Mr. Howe to proceed.

Mr. Chairman: One would almost think you were familiar with committees in the Legislature. Please proceed.

Mr. Howe: In my review of the brief, I will be deleting any citations. The citations themselves can be found in the written copy of the brief and more copious references to the source materials can be found in the Ontario Natural Gas Association submissions to the Ontario Energy Board.

This brief is made on behalf of the Ontario Natural Gas Association, an industry organization comprising over 300 companies and individual members representing transmission and distribution companies, natural gas producers, equipment manufacturers and suppliers, professional organizations, contractors and individuals, all of whom serve Ontario's multi-billion dollar gas industry. ONGA is the voice for the natural gas industry in Ontario and represents the industry's collective views in public forums.

ONGA welcomes this opportunity to express its views with respect to Ontario's future energy requirements and in particular electric power planning. Many of the positions set out hereafter have previously been expressed in a more detailed fashion in ONGA's submissions to the Ontario Energy Board in HR 11, 12, 13 and 14. In fact ONGA, in its submission in HR 12, recommended an inquiry such as this into Hydro's demand and supply options. Copies of that submission and all others are provided to the committee and its staff for reference.

In the past, Hydro has chosen to characterize ONGA as a competitor whose views are solely self-serving. ONGA doubts that it is a competitor in the true sense of that term. There is no doubt, however, that ONGA is an interested party to this discussion and will be vitally affected by its outcome. In spite of that, however, this brief is not and should not be perceived to be merely self-serving. Instead ONGA has, in the discussion which follows, addressed itself to some of Hydro's demand options, its financial soundness and certain procedural inadequacies inherent in the existing framework, which prevent a complete analysis of the electrical needs of the people of Ontario and Hydro's ability to meet those needs. Where applicable, natural gas is identified as the option offering long-term secure supply at least cost.

Hydro's legislated mandate is to deliver power at cost. ONGA has always taken the position that Hydro's revenue must therefore fully and fairly match its costs. In addition, ONGA believes that electricity rates should be as low as possible when electrical systems are optimally designed to serve the end-users for which electricity is best suited. As this discussion will show, however, Hydro is presently engaged in a process of keeping rate increases artificially low in the short term, which unfairly encourages homeowners, business and industry to convert to electricity and potentially expose those customers to higher prices in the future.

2:10 p.m.

I will now review certain of the subtopics in the demand options, the first of which is Hydro's marketing efforts. In so far as Hydro is promoting load management and conservation, the Ontario Natural Gas Association applauds those efforts and encourages Hydro to continue to pursue them. However, Hydro is also engaged in marketing efforts which seek to stimulate domestic sales of electricity. This discussion will focus on what appear to be contradictory and possibly counterproductive policies and programs of Hydro with respect to those efforts.

It is clear that Hydro is now engaged in many programs that are supportive of an increased use of electric heat. Such programs include the "Go Electric" and "Stamp out Cold Feet" campaigns, the residential energy advisory program, dual energy grants, the space heating information program, the heat pump information service and others designed to build load as a result of a perceived period of overcapacity. If these programs are effective, Hydro has admitted that there will be an increase in its weather-sensitive load. There are at least three policy contradictions in that approach.

First, considered in isolation, electric space heating is not only more costly to serve but, as an increasing component of demand, tends to increase the cost that all electricity customers must bear. Hydro's encouragement of the use of electric heat, therefore, is at variance with its goal of minimizing costs for all customers.

Second, Hydro is attempting to encourage a change in the load shape to

permit reductions in required capacity and a more efficient use of plant. If it does, Hydro's programs that support an increased use of electrical space heat will result, not in a decrease, but actually in an increase in peak demand. Therefore, Hydro's programs with respect to electrical space heat are in conflict with its attempt to lower overall system costs by the implementation of load management, time-of-use rates and other programs designed to reduce the peak requirement.

Third, because electric heat is derived from imported coal at the margin, more coal is used and more coal must be imported. Surely, encouragement of the use of imported coal is in conflict with Ontario's policy of trying to reduce its output of acid gas emissions and trying to convince other jurisdictions to do likewise. Hydro has announced significant programs involving major expenditures to abate the acid gas problem. These programs will undoubtedly form part of the future revenue requirements. Programs that simultaneously create and abate acid gas are clearly in conflict.

Hydro's approach can best be characterized by the analogy of driving an automobile with pressure on the accelerator and the brake at the same time. The automobile will cost far more to operate than it should. If load management, time-of-use rates and other such programs to reduce the peak requirement have merit because of resultant lower overall system costs, it must follow that programs which increase the peak demand have no merit.

In addition to being contradictory to many of its stated objectives, Hydro's marketing efforts will also increase the stress levels on Hydro's transmission system, ignore the potential distribution limitations within the municipal utilities, and increase the risk of the need for additional generating capacity earlier than would be necessary otherwise.

In the hearings before the Ontario Energy Board, Hydro identified five areas of the province--that is, southwestern Ontario, eastern Ontario, northern Ontario, Bruce and Darlington--where the capability of Hydro's transmission facilities do not meet utility reliability standards. Hydro has confirmed that the transmission links in those areas continue to be operated at "stress levels" and, in spite of that fact, Hydro is still seeking to stimulate demand throughout the province.

Hydro is also ignoring potential distribution limitations within the municipal utilities. Hydro has admitted that some municipalities, such as Toronto Hydro, have expressed concern about Ontario Hydro's marketing efforts in view of the limitations on the respective distribution facilities. As a result of Hydro's unfocused efforts to stimulate demand, some municipal utilities will be forced to upgrade their distribution facilities in order to handle the additional peak load. According to Hydro, stimulation in areas of the province with transmission and distribution limitations will lead to "blackouts." Blackouts are not only inconsistent with Hydro's objective of customer satisfaction, but will lead to a necessity to upgrade transmission and distribution facilities and ultimately higher rates for electricity.

The risks on the transmission and distribution facilities are heightened by Hydro's admitted inability to quantify the additions to sales due to marketing. In Hydro's planning load forecasts, submitted to the Ontario Energy Board, the plausible lower and upper limits of actual demand in 1990 encompasses a range of 3,000 megawatts. Even given the breadth of this range, Hydro assesses a 40 per cent probability that its load will be outside that range. We can only wonder how Hydro's demand load management is likely to be made effective under such uncertainties.

The Ontario Natural Gas Association is of the view that Hydro should cease its programs which seek to increase demand in Ontario until it is able to justify the potential effects of those programs on Hydro's operations and those of the municipal utilities.

I would not like to move to Hydro's special condition rates. In its report, Principles of Electricity Costing and Pricing for Ontario Hydro, which is HR 5, the OEB concluded that Hydro's rates, among other things, should be fair, which was broadly defined as the equal treatment of those causing equal costs. The OEB interpreted the objective as requiring that costs be tracked by rates to the extent practicable, undue discrimination be avoided and all consumption regarded as new consumption. With respect to rate structures, the OEB held that such structures should be publicly acceptable and comprehensible, should provide rate stability, and should be feasible in operation.

The OEB was of the view that Hydro and the municipal utilities should not introduce any form of life-line rate based on efforts of income redistribution or perceived equity. The OEB specifically found that it would not be prudent to depart from a rate-making process based on the cost of supplying power and plunge into a maze of value judgements that underlie perceived equity. For those reasons, the OEB recommended that rates not based on the costs of supplying power be rejected by Hydro and the municipal utilities.

In addition to the OEB's views, Hydro has, in the past, espoused certain rate-making principles. Hydro's mandate, first established in 1907 and reaffirmed every year since, is to provide power at cost. Hydro's philosophy, established in the past and reaffirmed each year, is to meet customer needs and yet cover costs. Consistent with the fairness objective for the setting of rates, Hydro's strategic marketing plan, submitted to the OEB in last year's hearing, HR 14, provides that "the 'fairness' objective precludes loss leaders and introductory offers which tend to favour one group of customers at the expense of others."

ONGA supports the concept of range rates when circumstances dictate, but only where those rates do not violate basic rate-making principles. However, as the following discussion demonstrates, Hydro's specific applications of range rates, ranging in 1986 from one cent per kilowatt-hour to four cents per kilowatt-hour, are not only inconsistent with the electricity costing and pricing principles established by the OEB, but also inconsistent with Hydro's own rate-making principles. The following examples illustrate these inconsistencies.

2:20 p.m.

1. Intermittent power: Commencing in 1984, intermittent power was offered at one cent per kilowatt-hour, and has declined and will continue to decline in real terms. A portion of intermittent power will come from coal-fired generation. There are significant pricing disadvantages and a number of inherent risks in the method used by Hydro to determine this rate. Specifically, the rate does not provide enough of a cushion to ensure that power can be sold at prices above its variable cost of production.

I might say at this point that a more detailed discussion of these incentive rates can be found in the Ontario Natural Gas Association briefs to the Ontario Energy Board that Mr. Pinnington has provided to the clerk of this committee.

Monthly Power: Monthly power is based upon a large proportion of coal-fired generation and is not, for the most part, surplus base-load generation that would otherwise go to waste, but rather power that would not otherwise be generated at all. It is being offered between 2.1 cents to 2.5 cents per kilowatt-hour and will not always cover its variable costs. It therefore relieves those customers able to take advantage of monthly power from their fair proportion of the burden of fixed costs.

Hydro is also proposing that monthly power be made available for high growth industries establishing new markets in Ontario. It is apparent that Hydro has moved in this rate and others to rate forms not based on the cost of supplying power. Instead, Hydro appears to be plunging into a maze of value judgements that underly perceived equity.

Industrial dual energy rate: Hydro admits that this rate is offered below incremental costs and that, to the extent that the rate does not cover costs, it is a detriment borne by all customers of Hydro. Hydro attempts to justify the contradiction to its principles by suggesting that the rate should be introduced in advance of covering costs "in order to enhance the customer acceptance and to build market support...." That justification, we believe, is contradictory to Hydro's fairness objective which precludes loss leaders and introductory offers. Hydro is also considering injecting some of its capital to help customers convert to electricity in circumstances where the net present value of converting is less than converting to a competitive fuel source. In other words, offering rates below incremental costs in some cases may not be enough, in which cases Hydro will simply give away additional money to, to use Hydro's words, "help the decision along."

Industrial average rate: This rate is "an all energy rate, i.e. no demand charge, available to customers in a growing or recovery industry, where the firm rate demand charge is an impediment to starting production." This is another example of a rate in which Hydro is departing from a rate-making process based on the cost of supplying power and plunging into the maze of value judgements.

Over the years of ONGA's participation before the Ontario Energy Board, at least three things have become apparent. First, coal is the swing fuel in Hydro's system. Second, in so far as Hydro is seeking to stimulate demand in the short term, any such stimulation will arise from coal-sourced electricity. Third, according to Hydro, there will be no significant surplus nuclear energy until 1990. Given those facts, we believe that it makes little sense for Hydro to seek to stimulate demand through its marketing programs, its capital incentives, and its special condition rates, when the net effect is an increase in the consumption of coal, a potential increase in peak requirement, and a potential increase in the level of rates that customers would otherwise be required to pay.

I will now move on to a discussion of Hydro's financial soundness.

In its submission in HR 11 in May of 1982, ONGA expressed concern that Hydro was jeopardizing the financial soundness of the government of Ontario. For that reason, ONGA submitted that Hydro be required to set a firm interest coverage target in consultation with the government and that it be required to use the target so obtained as a basis for determining its net income requirement. Subsequently, however, the government formally advised Hydro that its position was, in essence, that the responsibilities for specific net income targets rested with Hydro, but that Hydro should plan for, and achieve, financial results that did not prejudice the government's credit rating. In

particular, the government required that Hydro's operations be fully supportive of its debt and that there be no planned material deterioration in the debt ratio or level of interest coverage.

In the hearings before the Ontario Energy Board it has become apparent there has been a planned material deterioration in Hydro's level of interest coverage and that Hydro has changed its targets permanently to lower levels. Rather than achieve its targets, Hydro has admitted it has compromised its financial soundness by seeking lower rate increases.

Hydro did not achieve its target for net income in 1984 or 1985 and did not--in HR 14--project being able to achieve its target in 1986 or 1987. One can only conclude that Hydro's net income policy is relatively meaningless. By trading off financial soundness with artificially low rate increases, Hydro is insulating its customers at the expense of its bond holders and the government of this province.

Existing framework. By virtue of the combined effects of the provisions of the Power Corporation Act, the Ontario Energy Board Act and the minister's letter of reference, far too many important issues are excluded from the scope of the OEB's review. As a result, the OEB, the intervenors and ultimately the public are prevented from a complete analysis of the electrical needs of the people of Ontario and the methods used by Hydro to supply those needs, both directly to its industrial and municipal customers and indirectly to the vast majority of the consuming public.

More particularly, the minister's letter of reference by its terms has prevented an inquiry into Hydro's system expansion program. In light of the size and importance of Hydro's capital spending in the province, and recognizing the significant growth of that program and its demonstrated effects on Hydro's rates, the restriction placed upon the hearing by the minister's letter of reference is no longer appropriate. We believe the restriction should be removed from future hearings.

The second restriction inherent in the present procedure deals with the ultimate implementation of rate changes by Hydro. By virtue of the combined effects of the provisions of the Power Corporation Act and the Ontario Energy Board Act, Hydro can and has rejected the recommendations of the OEB in the implementation of its rates. One wonders how the public can have confidence that its views are taken into consideration when the OEB's reports are often discounted. We believe the present legislative framework is inadequate to govern the supply and cost of electricity to the people of Ontario. We believe there should be a change in the legislation so as to make Hydro answerable not only to itself but to the government of Ontario, through the Ministry of Energy, the Ontario Energy Board and ultimately to the people of Ontario.

The third stricture is the OEB's inability--and therefore the public's inability--to review the principles applied in the retail rate-setting process. It follows that if the public has the right to know its electrical needs and Hydro's ability to supply those needs at reasonable costs, that knowledge should extend to every level of the process from the generation stage down to the retail level. For that reason, ONGA is of the view a methodology should be established whereby a full and complete inquiry can be made into both bulk power and retail rates.

2:30 p.m.

Now I would like to move to a number of other issues.

The question of whether Hydro is improperly using its privilege as a crown corporation to borrow money with public support and to establish incentive rates, which may not cover costs and thereby unfairly compete with the private sector, deserves an expression of opinion by the government. In its report in HR 14, the OEB recommended to the Minister of Energy (Mr. Kerrio) that a review be undertaken of the future roles of electricity and natural gas to determine how the needs of the Ontario economy can best be served by these forms of energy. ONGA supports that recommendation and suggests such an analysis could be seen as within the purview of this select committee on energy.

ONGA views with concern the apparent transition Hydro has undergone from its legislated mandate of power at cost to a new philosophy most aptly described by the past chairman, Mr. Macaulay, in his statement, "We are now looking at a wider role for Ontario Hydro, considering the effects our larger construction projects, our exports, our rates and in fact all our activities can have on the social, environmental and economic life of the province."

The present chairman of Hydro, Mr. Campbell, stated more recently that, "After careful consideration of the OEB's recommendation, Hydro's board of directors decided that Hydro should keep its rate increases below the forecast inflation rate, a target we have set for ourselves for the balance of this decade...Hydro's board was aware that many of our customers have been living with price and wage increases lower than inflation, and we feel a particular responsibility to them."

ONGA takes the position that the concept of power at cost becoming power at cost adjusted for social obligations is fundamentally in error. This philosophy sends the wrong signals to customers, disrupts the true competitive balance between the various alternate energy forms, establishes false hopes for future power rates and has the potential of leaving a legacy of debt for tomorrow's customers of Hydro and possibly even the government of Ontario.

The manner in which both natural gas and electricity are marketed, their form values and the intricacies of their distribution systems, sets them apart from other fuels. This reality necessitates that government constantly monitor the relationship between these two energy sources and Ontario's overall energy balance in supply, demand and price. For these reasons, ONGA urges the acceptance of the recommendation of the OEB for a review of the future roles of electricity and natural gas by this select committee to establish how the needs of Ontario customers can best be served by the two energy forms.

Representatives of the natural gas industry in Ontario are keenly aware of the differentials that exist between the costs and selling prices of the commodity we market, as well as those of our competitors. The commercial viability of our industry is dependent on those and certain other variables, with one of the most prominent being the influence of government and its regulatory agencies. The move toward less regulation and a more market-responsive pricing regime for natural gas will add even further to the aggressiveness of the competition we expect to face in the future.

ONGA submits that Hydro has failed to recognize the long-term secure supply position held by natural gas, the efficiency of this fuel, its relatively benign nature environmentally and, most of all, its preferred competitive position. Natural gas now provides more than half of all the energy consumed in Ontario's residential, commercial and industrial sectors combined. In addition, a concerted effort has now been mounted to enter the transportation sector.

The National Energy Board and the Alberta Energy Resources Conservation Board have independently concluded that proven reserves of natural gas exceed 30 years' supply at present consumption levels and within existing economic criteria. A recent and innovative study released by the Economic Council of Canada determines reserves relative to economic conditions. This text confirms the findings of the NEB and the AERCB and further concludes that, "The ultimate potential supply is still large, even under the lower reserves price scenario," and "The prospects for additional nonassociated natural gas reserves are very bright indeed."

In addition to the preferred supply and price position held by natural gas, the industry is on the leading edge of new technologies that render the use of gas more cost-efficient. Among these new technologies are cogeneration and combined cycle equipment that enable the production of electricity at competitive prices. ONGA believes these are two worthy options to either coal or new nuclear power generation. Both options have the further benefit of placing no additional load on Hydro's existing transmission and distribution facilities.

Finally, with respect to Hydro's demand and supply options study, unfortunately little time has been available since its release to fully evaluate its contents. ONGA's tentative conclusions are that Hydro's supply and demand forecasts may be inaccurate. As an example, the study forecasts the price of natural gas will approach five times the price of bituminous coal. Considering the downward pressures on gas pricing caused by abundant gas supplies and moderating world oil prices, plus the historical relationship of about two times the price of coal, ONGA seriously doubts the accuracy of that forecast. No doubt other questions will arise as more time is devoted to analysing the study.

Then by way of conclusion, ironically, the ultimate risk to Hydro and its customers may be the momentum of Hydro's marketing efforts. By independently pursuing its marketing initiatives without regard to their impact on generation costs and transmission reliability, Hydro may be following the same pattern it pursued with its previous generation expansion initiatives. Hydro's marketing efforts, like its previous expansion initiatives, run the risk of failing to respond adequately and appropriately to changed circumstances. Hydro must break the cycle. If it chooses to ignore the lessons of history, it may be destined to repeat its mistakes in the future.

ONGA submits the following recommendations for consideration by this committee: first, that Hydro's power at cost mandate be reaffirmed and financial integrity re-established; second, that Hydro's financial position not be used as an instrument to redistribute wealth within the province of Ontario; third, that Hydro's rate-setting principles be subject to review for both wholesale and retail rates to ensure that sound regulatory principles are observed; fourth, that Hydro's role in the marketplace be determined by electricity's true competitive position relative to other energy forms.

Thank you for providing this opportunity to express our concerns. ONGA's staff is available to assist the staff of this committee on matters pertaining to Ontario's future energy requirements and the respective roles of natural gas and electricity, all of which we respectfully submit.

Mr. Cureatz: May I say how much I enjoyed the brief. Oftentimes we have concerned groups coming forward, be it Energy Probe and the like, who I find get into the philosophical discussions of the problems of Ontario Hydro.

Yet, your presentation brings home some practical problems you see and which I think are worthwhile for this committee to centre in on.

The first aspect is on page 6 with respect to Hydro's marketing--no, it is not as a matter of fact. It is not a question on any part of your brief at all, except with respect to something the chairman of the Ontario Energy Board brought forward. In such a delightful and ambitious presentation as he had, he indicated to us, "Ask the gas people if they are happy with the Ontario Energy Board and its deliberations in regard to the gas companies." There is my question.

Mrs. Grier: You had better put it in context.

Mr. Cureatz: No, that is the question.

2:40 p.m.

Mr. Aiken: As the individual responsible for ensuring the regulatory proceedings in front of the Ontario Energy Board for consumers, I might take it upon myself to respond to that question and at some risk in terms of whether Mr. Macaulay takes exception or pleasure in my response.

In recent years, the Ontario Energy Board has revised its approach to the regulatory hearings for the gas distribution utilities. It changed its internal planning and its internal scheduling to put the three major utilities on a forecast test year which really forced the Ontario Energy Board to review costs, returns and rates to ensure that the appropriate rates were in place at the commencement of the fiscal year of each of the utilities. In doing that, it increased its staff resource and changed the manner in which it reviewed the applications and conducted the hearings..

In my opinion, and based upon consumers' experience in those hearings, the Ontario Energy Board is acting reasonably and fairly. Although we say that the bottom line might be improved somewhat in terms of the final deficiency change or the rates put in place, that basically is a fair process and it is a consistent process. Generally the board acts to implement sound regulatory principles for the gas distribution utilities.

Mr. Cureatz: I am impressed with the effort that you people have to continually go through with regard to your presentations to the Ontario Energy Board. No doubt a great amount of funds is expended by your various groups at that belong to your association.

In your experience, do you think it would be worth while for a government to provide funds for interested groups to make their own separate presentations to the Ontario Energy Board, more specifically, consumer groups and environmental groups? If we are going to be supplying funds to those groups, why not to your association? Do you have any thoughts on that?

Mr. Aiken: Yes. First, we made submissions to the Ontario Energy Board hearing in to the funding of intervenors. At that point, we indicated that there was a significant cost involved in regulation in Ontario. We felt that the board was encouraging intervention and from consumers' experience--again, I speak personally from consumers--that we got intervention which put forward the positions of the interested parties, at that point, without funding.

The only times that costs had been granted by the board in our case were

when either a significant position was put forward by an intervenor that, in the board's opinion, would not have otherwise been brought out, or where the company forced intervenors or staff to take actions that incurred additional cost. The board has traditionally denied cost recovery where there has been a position of self-interest put forward by an intervenor. I believe the current process is working and I would not change it, although social change does occur.

Mr. Cureatz: The chairman made a pitch for greater jurisdiction and control over Ontario Hydro. I gather the kind of concern you had on pages 9 and 10 of your brief, where you outline a specific rate structures of Ontario Hydro and quote various chairmen indicating something beyond hydro at cost but setting a social policy. Would you feel comfortable with having a greater jurisdiction of the Ontario Energy Board expanded to Ontario Hydro so that Ontario Hydro has to play pretty well by the same rules that your organization would have to play by?

Mr. Aiken: That is generally the thrust of Ontario Natural Gas Association's position. You have to recognize that there is a differential between a truly rate of return regulated utility and the review process. Ontario Hydro does some regulation of its own, and we are not proposing that all of that change, nor suggesting that it should change. We do feel, though, that the review process by the Ontario Energy Board should be expanded and that the board's recommendations should have a greater weight in Hydro's ultimate actions.

Mr. Cureatz: Finally, something totally different. That is why I left this question to last. On page 6 is a small point. Now that I have the opportunity, though, I want to bring it to your indication. You say in the second sentence of the second paragraph, "Hydro has admitted that some municipalities, such as Toronto Hydro, have expressed concern about Hydro's marketing effects in view of the limitations on the respective distribution facilities." I have to say that in terms of my experience as a member of provincial Parliament for nine years, generally speaking, I have had more success with Ontario Hydro in terms of getting distribution facilities to constituents of mine than I have had with any gas company.

I have been working on some gas problems involving greenhouse operators in my riding of Durham East, and I am no further ahead now than I was then. As a matter of fact, if possible, I am in a worse position. The Consumers' Gas Co. suggested a cost of \$3,500 to lay down a gas pipe. The greenhouse operator stripped his greenhouse of all portable gas facilities, and the gas company came back and said it had made a computer error--it would be \$35,000 to lay the gas pipe down.

Mr. Brandt: What are you doing wrong?

Mr. Cureatz: There is much to be done on both sides of the fence.

Mr. Chairman: Do you wish to respond, Mr. Aiken?

Mr. Aiken: If I get the opportunity, I will pass.

Mr. Ashe: First of all, to be fair, I had better put a few things into perspective, so you will know where I am coming from. My equal-billed gas billing each month is slightly more than my hydro bill, so you can see that I use gas to heat my home. I am a supporter of the gas industry. I also was, until today anyway, a friend of Paul Pinnington's. I may not be after today.

Now that I have put things into perspective, I am glad my colleague complimented you on your presentation, because I do not. I found it completely negative, not too helpful and somewhat inaccurate. Let me get into a few specific points.

You spoke in more than one place, particularly on pages 18 and 19, of the long-term secure supply position. There is no doubt that this is considered to be true now and not overly debatable. It was not too many years ago, late in the last decade, that the gas industry in North America and specifically in Canada jumped on the bandwagon of the oil shortage threat throughout the world and talked about their resources as, not only finite, but perhaps disappearing very quickly.

I suggest that the industry maybe was a little bit a creator of its own competitive problems vis-à-vis electricity. It made provinces such as Ontario look at some more security in their own indigenous resources, which obviously were not gas or oil but related products. Do you have any defence of that or do you challenge the accuracy of that? You can challenge my date, by the way. I did not put one specifically because I cannot put a year right to it. It was the late 1970s.

They all looked at poor Mr. Pinnington.

2:50 p.m.

Mr. Pinnington: Since we used to be friends, maybe I had better answer this question.

There is no question that during a period when you were personally involved with the Ministry of Energy, and a period prior to that, 1974-79, there were occasions when there were indications of shortages of both oil and natural gas, in particular, with respect to natural gas, the period 1974-76. Your recollection is accurate. I believe there was even a natural gas allocation act that received third reading in this Legislature in 1976.

The reality of a shortage of gas in our history is there. The fact is that reality relates to an abnormally low pricing situation which developed. If you will recall, there was a shortage of oil relative to the price of oil and how, when the price of oil went back up, the availability of oil went back up.

I suggest to you that same price availability relationship exists for natural gas with existing prices for natural gas. As we have indicated in our brief, there is more than adequate supply for at least a 30-year period, and those are proven reserves under present economic conditions. There is every evidence of additional gas at this price level and at higher price levels. While that shortage is in evidence, I suggest to you that it is a price-related shortage, and we do not see the circumstance in the future.

Mr. Ashe: I am not challenging that aspect of it. The point I am trying to make is the great certainty now was somewhat uncertain not that long ago in the context of time. Some of the competitiveness the industry, intentionally or otherwise--I do not want to get into that one, and I appreciate part of it was price induced--was caused by the industry. In other words, some of the initiatives, particularly within Ontario, was on the basis of "Everybody is telling us we have got a problem, we have got very little control within this province with those kinds of resources, so let us develop others." At that time, there was more emphasis put on electricity which, once committed, carries on.

Anyway, I will get in to some other areas contained in your brief.

You talked about the uncertainty of forecasting. Again, nobody disputes that in a factual sense. If anything has come up day after day, week after week and month after month, regardless from what source, it is the conclusion, the acceptance and the agreement that whatever the forecast is, it will be wrong. That does not seem to be unique to Ontario Hydro. We have heard that from every jurisdiction that has been represented and everybody who commented. Some would say wrong on the low side, wrong on the high side, depending on where it is coming from. There is no doubt about it. Everybody concludes it will be wrong.

My point is that the forecast uncertainty and the range of the uncertainty is not overly unique to Ontario Hydro and what it is doing. You referred to the 40 per cent outside the probable range, and that has been discussed in great detail.

I am curious to hear a little more on your conclusions that all of the marginal generation is coal-fired and that there is no surplus of nuclear till at least 1990. I know you made a reference to the fact that Ontario says that itself. I want to see that reference. There is no doubt about it that the present goal of Ontario Hydro--which Mr. Pinnington noted sure and I am sure you did--is to increase the percentage of generation by nuclear means. One of the goals of that is to decrease substantially the coal-fired generation and, hence for economy purposes as much as anything, and for environmental purposes. As each new nuclear-generated station comes on line, the last unit or so at Pickering and the last one or two units at Bruce, let alone the first two at Darlington, both come on line based on the current schedule before 1990. I am curious as to that conclusion.

Mr. Howe: Mr. Ashe, perhaps I can handle that. You have asked for the source of the information and I have that information with me now.

In so far as the first fact is concerned and our first contention that coal was the swing fuel in Ontario Hydro's system, that was the evidence of Mr. Nastich in HR 14 at transcript page 3491, lines 24 to 30. In so far as Hydro is seeking to stimulate demand in the short term, any such stimulation will arise from coal-sourced electricity. That was an admission made by Mr. Nastich in HR 14 at page 3492 of the transcript, lines 1 through 8.

Mr. Ashe: What was the date of that?

Mr. Howe: That is HR 14 of last year's Ontario Energy Board hearing.

With respect to Hydro's admission that there will be no significant surplus nuclear energy until 1990, that is a quote from Mr. Falk; he was a witness for Ontario Hydro in HR 14. That can be found at page 1951 of the transcript, lines 5 to 13.

Given those facts, we believe it makes little sense for Hydro to seek to stimulate demand in its marketing programs and its other special incentive rates. The net effect is an increase in coal and a potential increase in peak requirement, which we think is contradictory to Hydro's efforts to shift demand from the peak to the shoulder months.

Mr. Ashe: No doubt that is the initiative. We are sure asking Hydro on the basis of 1990, because I cannot recall anything that we have seen from Hydro or others that suggested 1990. Keep in mind 1990 is the key here.

Mr. Haggerty: No. I am just looking at the current and this is the electric power in Canada by the Department of Energy, Mines and Resources.

Table 12 says: "Energy resources electricity exports by province in 1985 per cent," and it goes on to show Quebec with zero, Ontario coal was 96.4. There is an indication in the document that I have here that Ontario Hydro is using coal for peaking purposes and for export.

Table 10, "Exports and revenues by province," says, for example, New Brunswick exports 5,311, I guess gigawatt-hours, and the revenue in gigawatt-hours is 51.2. Ontario exports 12,279 gigawatt-hours and the revenue is 37.5. There is quite a variation between the amount that is exported by both provinces. The one that seems to be exporting the smallest amount gets the biggest return.

Mr. Ashe: I do not want to bore you with that one. I can answer him later.

Mr. Haggerty: I do not think that is boring; that is a fact.

Mr. Ashe: It is the market that it sells into. It sells it cheaper than the other place can produce it itself. That is what the market pays. If you look at the Quebec figures, that is a little more relative than what they have to sell it for in the east.

Mr. Haggerty: Quebec is Hydro.

Mr. Ashe: Anyway that is another issue.

Mr. Haggerty: The intent of that report is driving that point home.

Mr. Howe: Mr. Ashe, I hate to get into this debate too much.

Mr. Ashe: Anyway, it is not even appropriate anyway for him at this time.

Mr. Howe: To fully answer your concern, it is clear that Hydro is marketing in its secondary market, which is the export market from coal-sourced electricity. I recall that only something like two per cent of Hydro's secondary market is sourced in nuclear generator electricity so by far the overwhelming percentage is from coal. The problem we have is because coal is the swing fuel now. If they are driving up the heat sensitive aspect of their peak, it has to come from coal, and it will continue to come from coal.

2:50 p.m.

Mr. Ashe: I would like to have the opportunity to have a long discussion with Mr. Pinnington, to know how the pricing of exports are arrived at. They do not sell what goes over Niagara Falls, for example, when they are pricing it. The last thing they are going to sell is the cheapest, the second last thing would be the second cheapest, and so on. The price it is sold at really does not indicate where it comes from. That is a long discussion that I would be very happy to enter into with you at some time.

Does the gas industry not use incentive pricing in any way? You seem very critical of any form or indication of incentive pricing for electricity into different markets. It is my understanding that the gas industry, particularly in negotiations that have gone on in the last couple of years, have been encouraged to and have agreed to incentive pricing for industrial uses to increase volumes. What is the difference?

Mr. Pinnington: There is certainly no question that the natural gas industry has been involved in incentive pricing. Indeed, the natural gas market's incentive program has been of very substantial benefit to the industry in Ontario, but I would suggest to you that at no time has the natural gas industry in Ontario sold gas at less than its cost and that is the fundamental principle at stake here.

Mr. Ashe: At less than whose cost? The local marketer, whether it is Consumers, Northern and Central, Union or whatever, needless to say, why should they? However, if somebody at the other end is picking up the extra 25 cents or 50 cents per mcf or whatever, how do you know what field it is coming out of?

Mr. Pinnington: We do not know what field it is coming out of. Molecules are not marked; your observation is quite right. The reality is that back in the field the producers, those who would seek to sell gas at less than their cost, would not survive for very long. I cannot tell you that there is absolutely is not one who has not sold gas at less than cost, but I think it is highly unlikely it would happen for any period of time.

Mr. Ashe: I agree. I would hope the same conclusion would come with any form of energy.

Mr. Pinnington: If I might reflect back on your original question, that is what happened in 1974. The price of gas got so low that people stopped exploration and production of natural gas and we ended up with a limited supply.

Mr. Howe: To explicate to a certain extent as well, what we were concerned about was a trend in Ontario Hydro to not only market below average cost, but now they have admitted that they are marketing below incremental cost as well. Indeed in one of the rates I used as an example, not only are they marketing below incremental cost, but they are considering giving away money to help the potential customer come on to electricity at the expense of other competitive fuels such as natural gas.

Mr. Ashe: That leads me very nicely into my next point. Thank you. We have had many witnesses, particularly in the last couple of weeks, who have not only suggested--it was even stronger than that--using very vivid examples, depending on the jurisdiction from which they came, that it was a very valid role for Hydro and/or government--depending where they were coming from and I will acknowledge that--to be involved in conservation by spending money on a potential consumer to upgrade. For example, using a specific illustration, to encourage the further construction of R-2000 homes, they should go to the building industry and pay the difference for that extra upgrading because ultimately it benefits all consumers.

You can argue on both sides of that one. I accept that. It will benefit all consumers if you conserve and cut down future needs for systems expansion. That is not my point. What are the industry's thoughts on a utility such as Hydro spending money to encourage use, I suppose you could say? Supposedly it is to encourage conservation and cut down on consumption, whether that be industrial, commercial or residential.

Mr. Pinnington: Are the funds involved here seeking a return? Is Hydro seeking a return on the funds? If it is purely and simply to, from a social point of view, support people in Ontario, then that is what we call a redistribution of wealth and we think that is inconsistent with the question

of supplying power at cost. Certainly, the natural gas utilities involve themselves in programs in which they are financing, but at all times there is the question of return on that investment.

Mr. Charlton: To put Mr. Ashe's question in the context in which those presentations have been put to us, so that you can perhaps better understand it in terms of your present response, it has not been put to us as giving away money but as investment in plant, having determined the value of conservation as a generating plant in their system, looking at all the aspects, including return, that they look to in terms of other generation facilities.

Mr. Howe: Perhaps I can respond to some extent. The problem we have is that Hydro is engaged in many programs which are not, strictly speaking, conservation-oriented in that it seeks to displace one energy source with another.

Hydro may be able to tell people it is conserving energy, but it is of little use to switch from one source to another if the electricity source is based on coal. In the end, what gets burned is coal.

Mr. Charlton: What Mr. Ashe's question relates to though is not what Ontario Hydro is doing but what other jurisdictions have told us they are now doing in evaluating their systems; planning for the expansion of their systems; looking at conservation as a system resource the same as hydraulic generation, coal-fired generation, nuclear generation or any of the other alternatives; assessing that conservation resource by the same criteria as those other options and then deciding to invest in those aspects of conservation that are cost-competitive with the other options.

Mr. Howe: In other words, looking at conservation as a supply option.

Mr. Charlton: That is right.

Mr. Ashe: It costs \$1 billion to save 1,000 megawatts, rather than \$2 billion to create them.

Mr. Howe: It is a point well taken.

In our previous submissions before the Ontario Energy Board, we brought up this subject as early as 1982. I remember cross-examining Mr. Nastich about it. We were talking about demand and supply options in 1982, before Hydro started thinking about this demand-supply option study. At the time, Mr. Nastich responded during the course of cross-examination that, given Darlington, it did not make a lot of sense to look at other supply options. That was the end of the question. The equation did not have to be looked at any more. Because of this other alternative, we did not have to pursue conservation.

At the time, we urged that Hydro not limit any of its options, including conservation options, that it come before this committee and the board and try to justify its position in the light of the various options. We twigged to the idea a long time ago, and that is one of the reasons we look forward to speaking about it.

Mr. Charlton: To get that in firmer terms, I refer to Mr. Ashe's original question. In terms of your view of Hydro--not in the past, because we do not see that it has done it in the past--but in the future, treating

conservation as a supply option and considering cost-effective investments in conservation as a supply option, do you have any objection to that kind of program?

Mr. Ashe: It might include grants.

Mrs. Grier: Incentives.

Mr. Ashe: Incentive grants.

Mr. Pinnington: Again, I think you have to look at the whole equation. There has to be a decision on what the return on that investment is. You cannot look at Hydro as the only source of energy in that equation. You must also consider the other fuel options in that equation. I cannot deny there may be circumstances under which it might be a wise investment to forego building new generation.

I think one of the first questions I would have to ask is, "What is the cost of building that new generation?"

Mr. Charlton: It is the same thing we have been asking.

Mr. Pinnington: We would be using a very high number that would give us some weird answers. I think that is where the answers lies. It lies in examining all of the options, all of the elements of the equation.

3:10 p.m.

Mr. Howe: I might say as well that because of the procedural inadequacies of the present system that question comes, within the context of the Ontario Energy Board, almost irrelevant because the OEB, as you know, cannot look into the capital expansion program of Hydro.

Mr. Charlton: Yes, we are looking at that too.

Mr. Howe: We have always supported the proposition that the review should include the capital expansion programs and the conservation programs as another option.

Mr. Pinnington: Could I make one point? The whole question of nuclear has come up here on several occasions and, on behalf of the Ontario Natural Gas Association, I would like to be on the record as saying that the association at no time has criticized the nuclear option. We have great respect for the technology and the contribution that the nuclear option brings to Ontario, Ontario Hydro and the people of Ontario.

What we do question on occasion is the cost. I think it is very important to recognize the point that Bob is making that we do not see nuclear power as a peaking option. To the best of my knowledge, and I do not propose to be an expert on nuclear power, I believe its base load power does not have the flexibility to peak with nuclear power. Therein lies some of the inconsistencies that we have been discussing here in the past few minutes.

Mr. Ashe: I have a little difference of opinion on that. If you market something you market it on the basis of when you can supply it. That would usually be to market it at the lowest price when it is off peak, or when it is already there it is being base-load generated, if you will, and there is no other place to put it so you can sell it at a price that makes it attractive. Anyway, that is neither here nor there.

In any particular emergency situation, as you know, all of the jurisdictions around try to assist each other and, at some time, it is mutually not at an appropriate time, whether it is Ontario helping Quebec, or Quebec helping Ontario, or helping New York or over into Manitoba.

Back to the investment and encouragement of conservation. I do not think anybody would disagree that we would regard natural gas and oil as finite products. Does anybody disagree with that? Does it sound like a commodity?

Mr. Pinnington: They are a nonrenewable resource.

Mr. Ashe: Okay. That is even a better description than finite.

We talked about Hydro and the supply option known as conservation, and the pros and cons of spending money to cause that to happen. What is the position of ONGA? I see its role just as important, or even more so because we are talking about a resource that is diminishing and will eventually disappear. What is its role in investing and spending money to have people upgrade their gas furnaces to become high-efficiency burners, to encourage some of our early upgrading of the envelope, known as a house which, in fact, would be completely negative on the sale of gas in the short term, but would cut down and lengthen the time of the 30 years that is presently on the horizon? I appreciate it will be longer than 30 years, I will not dispute that, there is always more to be found when it is economic.

Mr. Pinnington: I am a natural gas customer of Consumers'.

Mr. Ashe: So am I.

Mr. Pinnington: Oh, you are? You have indicated that you are. I am sure you have been the recipient of the numerous credit card stuffers, as they are called, that have advised you of the opportunity to insulate the magnificent things that the natural gas industry has done with respect to high efficiency furnaces.

We now have equipment with efficiency in the mid-90s. We are very proud of this equipment. We suggest to the consumer that, indeed, an investment in this piece of equipment has a very short payback and is an excellent investment, not just a financial investment for the individual but as a matter of conservation. We have been very proactive in marketing new technology and high efficiency. All of our utilities have been.

Mr. Ashe: We have been hearing the exact same knock on Ontario Hydro when it says it has been encouraging conservation through advertising, through inserts, etc. for years. The critique of them was exactly the one that I am going to throw back at you.

You have put out all these things but we all know that for most people you not only have to lead them to the water, but you have to make them drink. In other words, the incentive of the payback does not work. We have been told; and, as a matter of fact, we had an agency last week that said; anything beyond six months you have to market. Others have said under two years it can carry itself, but anything longer than two years in terms of payback, forget it unless you have a great incentive.

Does the industry feel that strongly about it that it is prepared to put incentives in there to encourage people to become more efficient and conserve the finite resource known as natural gas?

Mr. Pinnington: I do not know who the individual was, or the circumstances under which the statement was made, but I believe our experience has been that the incentive that lies in going to high-efficiency equipment has been very well received by consumers in the province of Ontario. I believe that of all of the new equipment that is being sold today, more than half of it is high-efficiency equipment. So, I think the message is clearly getting through. It is a more expensive option but I think the long-term payback is very significant.

Mr. Ashe: I accept what you say. The main--

Mr. Pinnington: I can only tell you what our experience is.

Mr. Ashe: --thing that we have been getting is that it is not only the new stuff, if you will, because then you can present a case fairly easily, but the upgrading and/or conversion of things that would not normally be changed over in the short term.

I will go down to the last two points.

This is a specific quote from page 17, "debt for tomorrow." Again, I took it out of context, but you have several references to the debt position. Have you been aware of the testimony that this committee has had and documented before it tabled its interim report a number of months ago in that regard?

One of the issues that was raised by those opposed to Darlington was on the basis that it was ruining not only the financial integrity of Ontario Hydro, but hurting the credit and borrowing potential of Ontario. That was dealt with in great detail by economists and bond experts, etc., both from this side of the border and the other. Even this committee, believe it or not, had to, with the evidence, come to the conclusion that it is in no way a detriment to Hydro's credit rating or Ontario's credit rating, and, in fact, has not in any way cut off its borrowing potential if and when it is needed by Ontario. I am sure the chairman or the clerk of the committee can provide some of that evidence if you wish to see it.

One of the other issues that was dealt with on the same line, and I think is something that you should be aware of, is the debt-equity ratio.

Mr. Sargent: When does your book come out?

Mr. Ashe: Shortly. I am going to have it dedicated to you, Eddie.

Again, that came into the financial capabilities, obviously. There did not seem to be any indication of any deterioration. Yes, there has been a year or two of a fraction of a point up or down, there is no doubt about that, but as I recall, in terms of Canadian public utilities, Ontario Hydro had the best--if it was not the best, it was nearly the best--debt-equity ratio of large or small utilities in Canada.

3:20 p.m.

It is not very practical to compare it with a shareholder, that is for sure, because apparently the numbers do not compute at all. I think that is important to know. I am sure it is part of that same evidence we also saw, that the outstanding debt of Ontario Hydro has peaked and is on its way down and unless the government approves a significant new capital investment in the

short-term future, which is highly unlikely in my view and I am sure this committee's view, that--

Mr. Haggerty: --on the market now; we do not need any more--

Mr. Ashe: --it is going down. I have one last question.

Mr. Sargent: How can you say the debt has peaked when you do not know what the cost of the end of the deal? He does not know what he is talking about.

Mr. Ashe: Eddie, I can tell you I know a hell of a lot more what I am talking about than some of the crap you come out with.

Mr. Sargent: Is that parliamentary?

Mr. Chairman: There may be some subjective judgements being offered here. Mr. Ashe--

Mr. Ashe: What is the position of--this is the very last little question--

Mr. Chairman: I just warn you, I have an extensive list here and I am going to curtail questioning at 3:30 p.m.

Mr. Ashe: I have 30 seconds. What is the ONGA's position on the use of natural gas to generate electricity. I am not even talking about Ontario Hydro here. As a position, do you think it is the kind of resource that should be used in that way?

Mr. Pinnington: We have said in our document that combined-cycle power generation and cogeneration are two very excellent opportunities for the application of natural gas for the generation of electricity as well as for steam requirements. We see these as very competitive options, if that answers your question. We also had recent discussions with Ontario Hydro with respect to the possibility of reintroducing natural gas and power generation at the Hearn and Lennox and possibly other applications.

Mrs. Grier: I was interested in your comments about the recommendations from the Ontario Energy Board to the Minister of Energy that a review be undertaken of the future roles of electricity and natural gas--HR 14. What date was that? How long ago was that recommendation made?

Mr. Howe: Mrs. Grier, that is contained in last year's energy board report to the minister--HR 14. I am looking at it right now and it is 1985.

Mrs. Grier: It is 1985. Is that the first time that recommendation had been made?

Mr. Howe: To my knowledge, yes. That report by the way was submitted to the minister on August 30, 1985.

Mrs. Grier: When you discuss the constraints that are placed on the OEB in terms of looking at Hydro and broader issues than are included in the minister's letter of reference, has that been an issue at the board? Have you or other interveners attempted to question Hydro on issues beyond the exact letter of reference and, if so, what has been the nature of the discussion or the response?

Mr. Howe: In the past, we have tried to get into the capital expansion program, albeit not directly, but unfortunately a capital expansion comes up quite often because of the impact of costs, the revenue requirement that Hydro seeks to bring forward. The subject is brought up in a collateral fashion, but usually what happens is the discussion is cut short. Someone raises the issue of the minister's letter and we are prevented from going beyond to look at the consequences of the capital expansion program.

In the past, we have recommended in our submissions to the OEB and, indeed, the OEB has recommended in previous reports to the minister, that capital expansion be dealt with in a more expansive fashion in front of the OEB.

Mrs. Grier: I was curious, in the situation that you describe of that coming up at the board, to know whether it would be the chairman of the board ruling such questions out of order or Hydro saying that they are not going to answer because it is not in the letter of reference.

Mr. Howe: Frankly, I cannot recall the dynamics of how the issue would be raised to curtail discussion. I think that all of the participants in front of the board, that is the more active interveners of which ONGA is one, know that we have certain parameters, so after the issue is raised, people know that we cannot get--

Mrs. Grier: You are not going to get any further.

Mr. Howe: So, we do not pursue, frankly, because we do not want to become antagonistic.

Mrs. Grier: When you take the position that the concept of powered cost becoming powered cost adjusted for social obligations is in error, could you expand upon that a bit or define the kinds of social obligations that you are referring to?

Mr. Howe: The best I can do at this point is mention the incentive rates that we discussed in the brief. A few of those rates were designed to encourage growth within industrial sectors and within certain areas of the province. Hydro was encouraging that growth by offering discount rates, in effect, to potential customers. It also encourages customers through use of its rates that do not attract full incremental costs.

We have always submitted that when it gets into encouraging growth within certain areas of the province or when it gets into encouraging growth within certain industrial sectors or when it starts getting into loss-leader rates, those are value judgements that Hydro should not be making. Hydro should be making its judgements on the basis of costs. It is the role of government to encourage development; it is not the role of Hydro. We believe that Hydro's application of these incentive rates has been inconsistent with the principles espoused by the board and indeed, they are inconsistent with Hydro's own rate-setting principles.

Mrs. Grier: So, it is not the fact of using utilities to generate growth in a particular area or to do something that you object to. It is the method in which it is done, given that it is not a direct instruction from government to Hydro to do this.

Mr. Howe: Not only the method by which it is done--that is, it is coming from Hydro and Hydro is giving the signal as opposed to the government

giving the signal--but in our view it unfairly puts the natural gas company in a difficult position because these are rates that do not track costs and it is an attempt by Hydro to encourage certain industries to convert to electricity at the expense of natural gas. We feel that is not playing by the rules of the game.

Mrs. Grier: If your industry wants to use incentive pricing to market in an area where you are not in or bulk or something or other, do you have to go before the board and justify that or get approval for that?

Mr. Howe: We support the concept of range rates, which is, I think, what you are asking about. However, we have always taken a position that range rates have to be justified on the basis of rate-setting principles, rate-making principles. Hydro is not doing that. One of those principles is that the rate has to, as Mr. Pinnington pointed out, attract at least incremental costs. Hydro is not doing that either.

Mr. Pinnington: Those rates are approved by the Ontario Energy Board. We do not have the flexibility to approach a particular customer and have a special rate. We can only work within the approved rate structures.

Mrs. Grier: I see. You have to go back to the board if you want to make a change.

Mr. Pinnington: Then you would have to do that in a full hearing and have your whole rate structure re-examined.

Mr. Aiken: One of their principles is that must be cost-related cost recovery.

Mrs. Grier: To come back to my seeking a wider definition of the term "social obligations," you are not including in that necessarily a desire on the part of government; ergo Hydro, to cut down on acid gas admissions by diminishing coal. You are looking at it strictly in a more financial sense.

Mr. Howe: That is right. We do have, as we have pointed out, some thoughts about Hydro's use of coal, particularly their marketing from coal, and also the results, i.e., acid gas, on both sides of the border. So, we do have views in that regard as well. However, in our discussion of the rates, we were looking at it from a fairness point of view.

Mrs. Grier: So, you do not object to social obligations being imposed on Hydro, if they are clearly opposed by government and enunciated and taken into account.

Mr. Howe: That is correct.

3:30 p.m.

Mr. Pinnington: I think any corporation has certain social obligations. We do. We expect Hydro does as well.

I would like to take the opportunity to focus again on page 17. I think the ultimate social responsibility we see that Hydro has displayed is in Mr. Campbell's statement last year when the rate increase came through. That is the quote that we have here: "Hydro's board was aware that many of our customers have been living with price and wage increases lower than inflation, and we feel a particular responsibility to them."

In other words, the final price they established was based on the fact that it did not have anything to do with power and cost. It was on the fact that we were having a difficult time in the economy and that probably wage and salary increases had not been very high, and therefore Hydro should make an adjustment for this social situation that had developed. That is the sort of--

Mrs. Grier: So you accept that statement at face value as a fundamental reason for their attitude on rates, rather than a rationale for something that was done for entirely other reasons?

Mr. Pinnington: We see that statement as absolutely inconsistent with power cost.

Mrs. Grier: Thank you.

Mr. Chairman: It is now 3:30. We can continue with the questions if I have a guarantee from you that you will all remain until the final bell is rung.

Mrs. Grier: Even those of us who have already asked our question?

Mr. Chairman: Otherwise I will move on to the next presenter. What is your wish.?

Mr. McGuigan: Some of my questions have been answered. I am quite willing to move on.

Mr. Brandt: As a result of your comments most of my questions have been answered too.

Mr. Chairman: Mrs. Grier, Mr. Brandt, Mr. McGuigan, we have Mr. Haggerty, and I will allow about, what--

Mr. Haggerty: All the time that is permitted.

Mr. Chairman: Six or eight minutes, Mr. Haggerty.

Mr. Haggerty: I am always short.

Mr. Chairman: And be quite concise.

Mr. Chairman: I want to compliment you on your brief this afternoon. It might be provoking to some members of the committee, but I think there are some good questions asked there that I think perhaps our expert staff is going to have to answer.

Is the Ontario gas industry looking at any major expansion programs in Ontario? You do not cover every municipality, do you? Yet I think you said that you cover about 50% of the energy market. That includes commercial, industrial and residential. Now I understand that there are areas in the province of Ontario that have no gas available to them. Do you have any long-term programs in this area?

Mr. Aiken: If I could just generalize, again, the natural gas industry is regulated and its expansion programs are reviewed by the Ontario Energy Board. There is a significant cost in a pipeline expanding a significant distance beyond the existing network.

Mr. Haggerty: But you have the same thing in Hydro, would you not, with transmission lines?

Mr. Aiken: That is correct. But unfortunately the natural gas industry has its costs reviewed, and any significant expansion area that is considered now a distance beyond the existing network is generally financially unfeasible.

Mr. Haggerty: In other words you have no plans at all then to say that you are going to supply natural gas some place up around, maybe, Southampton or Port Elgin, or some place in that area--there are other places in Ontario. You have restricted yourself pretty well to the Golden Horseshoe in a sense.

Mr. Aiken: At the time when the federal government had planned the distribution system expansion plan, which was to fund unfeasible expansions of the natural gas network, Port Elgin and Southampton were considered. Although it was not a Consumers' Gas region--it was Union Gas--I have a personal interest up there. Even with a significant government grant the use of natural gas and the revenue to be generated from foreseeable customer capture up there was not sufficient to repay the investment, and that investment could not be made.

Mr. Haggerty: So there is a difference in comparing the two energy corporations, natural gas and Ontario Hydro, where it is not feasible, or may become too costly, for you to venture out into some other municipality, in a sense to say you or Ontario Hydro may ignore the mandate that says you have to supply energy there.

Mr. Aiken: There are two drivers for energy at cost. The first is that any system expansion must be reviewed and approved by the Ontario Energy Board. The second is that any unfeasible expansion is to the detriment of the public shareholders, and they tend to get upset if net income is not there.

Mr. Charlton: A supplementary on that, just so I can fully understand it. I guess what you are saying then is that the board will not allow you in an uneconomic market like Port Elgin or Southampton to spread the recovery across the whole rate structure, that you have to recover the investment from those communities, whereas Hydro can go into uneconomic areas because it is spreading the cost of recovery across the whole system.

Mr. Aiken: There are some minor exceptions to that, but basically that is the concept: that existing customers should not subsidize expansion in the future, that it should be recovered from those customers who are either going on the line or can be foreseen--

Mr. Haggerty: Similar to local improvements in a municipality.

Mr. Aiken: Yes. There is a time frame to that.

Mr. Haggerty: On page 9 of your brief is the question of considering cogeneration by using natural gas. Could you operate if you were offered cogeneration at one cent per kilowatt-hour, or less than what Hydro is selling it for? Does the cost of converting your energy into electricity make cogeneration feasible? Is there a profit to be made by your industry and by Hydro?

Mr. Pinnington: I am not familiar with all of the details. The

cogeneration application is, generally speaking, a smaller one. That it could produce power at one cent a kilowatt-hour is highly unlikely; that it would be competitive with coal-fired generation, the answer is yes.

Mr. Haggerty: Page 9 states that the specific application to range rates would vary from one to four cents per kilowatt-hour. We are talking about cogeneration. It has been indicated that other industries may be interested in it, but if you are going to be selling electricity for that price, then I cannot see that there would be any return for Ontario Hydro if it is going to cost less than that.

Mr. Howe: Perhaps I can help for just a minute. The discussion on the rates set out in the brief is really a summary. The rates are extremely complex and some of them are offered only in certain months, that is, the shoulder months. Other forms of rates are offered throughout the year. It is extremely difficult unless we sit down and get into it in a much longer form of discussion to really direct our attention to the one-cent power application.

I think, as Mr. Pinnington pointed out, there are certain instances in which gas-fired cogeneration is a viable alternative, but it would be very difficult to put the question that you have raised in the context of one-cent power because it is not made available by Hydro throughout the year and in all areas. We would have to sit down and discuss it. It would frankly take a long time to fully answer your question because of the complexities in the power that is being offered by Hydro.

Mr. Haggerty: You have perhaps the same rate schedule too, with different rates for residential, commercial and industrial. As I recall, one of the chemical plants in Niagara Falls was complaining that it could not convert natural gas into fertilizer because the cost was too high. Apparently it did get a better rate.

Mr. Chairman: We are down to one minute.

Mr. Haggerty: You are really watching it closely, aren't you?

Mr. Chairman: You bet.

Mr. Haggerty: My name is not Ashe, is it?

Mr. Ashe: I put my hand up sooner; that is all.

Mr. Haggerty: I thought you wanted to leave the room.

You have variable rates then, similar to what Hydro has, do you not? You have to be competitive in that area. You can only pass that small rate of one cent or four cents a kilowatt on to the consumer. If gas did the same thing, we would all be happy.

What is your forecast for the price of gas and oil given the crisis in Libya? Do you see any price increase in this area?

3:40 p.m.

Mr. Howe: Perhaps I can let Mr. Pinnington or Mr. Aiken answer that question. I might say that in the past we have been somewhat sceptical about Hydro's forecasts of the price of oil and natural gas. Hydro has in the past in its Ontario Energy Board applications pegged the price of natural gas to

the price of oil. Given the current situation, that makes all of the previous forecasts that Hydro has used relatively meaningless. One of the problems we have is that we have not had the time to fully study the demand-supply study to ascertain whether they have used those kinds of forecasts. If they are using them, it is frankly just shooting in the dark. In terms of the future costs of oil and natural gas, I think Paul or John would be in a better position to answer that.

Mr. Ashe: Get your hands on your phone to your stockbroker.

Mr. Pinnington: It is important to consider the long-term price of oil or natural gas as not necessarily being a nice, smooth line on a curve. That is probably the error that many of us have made before and never before have we seen a swing quite like we have seen even in the past six months where a barrel of oil on the international market has gone from \$40 down to \$12, or less than that in most recent days.

If you are asking me if there was an embargo on the international market on crude oil tomorrow as a result of this recent upset in the Middle East would the price go up, the answer is clearly yes. To what level, over what period of time would be difficult to say. In looking at the long-term price, in the 30 years that we are saying gas is going to be available, we have no reason to believe that natural gas would be other than quite competitive with the alternate energy sources.

Mr. Haggerty: Thank you, Mr. Chairman.

Mr. Chairman: Thank you, Mr. Haggerty.

Mr. Haggerty: Do you have a question?

Mr. Chairman: I have a brief question that just requires a yes or no answer. Are you part of Hydro's public consultation process on the supply-demand option study?

Mr. Pinnington: I am not personally. The Ontario Natural Gas Association is not. There may be someone within Consumers, Union, Northern and Central--one of the industry people. I can check and advise you accordingly if you would like.

Mr. Aiken: To my knowledge, the only public consultation that we have is as part of their economic forecast group.

Mr. Pinnington: Before we retire--I assume that is the end of the questions--I would like to observe the question asked by Mr. Cureatz about his greenhouse and I will undertake to seek some answers for him in that regard.

Mr. Cureatz: Gene McNamara, who came in and visited me from the regional office, wherever the regional office is, had a great story. It was told well, and I understood it perfectly, but I got the gas company in a corner on it and I thought it would be interesting to follow up.

Mr. Aikens: It is one of those requirements to provide at cost.

Mr. Cureatz: Yes.

Mr. Pinnington: I will seek to obtain an answer for Mr. Cureatz on that.

Mr. McGuigan: There is one out our way that Union takes good care of, as long as you do not mind.

Mr. Pinnington: Mr. Chairman, we again welcome the opportunity to assist your staff in providing any detail they may require on the natural gas side of our activities. Thank you once again for inviting us to join you.

Mr. Chairman: Thank you, Mr. Pinnington.

Energy Probe; Mr. Rubin, Mr. Poch, welcome again.

ENERGY PROBE

Mr. Rubin: Thank you; it is good to be before you again. We are going to be speaking in turn. In fact, my colleague David Poch will be providing the first presentation and he will be setting some of the framework of our discussion, outlining part of the problem as we see it and as we hope the committee sees it or will see it by the end of the hearings. We will begin on our proposed solutions and I will largely handle the rest of our proposed solutions.

Mr. Poch: This committee has an opportunity that its long list of predecessors has not shared. Today in Ontario there is a confluence of all the necessary ingredients for positive reform of the electricity sector: public support, a confidence in the availability of good technological alternatives and, as Ontario Hydro has put it, a window in the planning continuum. Now more than ever is the time to act.

Having been present for much of the last two and half weeks of hearings, I am pleased to see several themes emerging and I hope conclusions emerging that are consistent with the conclusions that Energy Probe has itself arrived at after studying problems facing the energy sector for many years. I think it is fair to say that we have heard a lot that used to be considered revolutionary or in Mr. Cureatz's words, "even philosophical," now being described as conventional wisdom.

Hydro now acknowledges that efficiency is an option to be considered and it was just last Friday that we heard one of the nuclear industry representatives, Mr. Donovan, agreeing that even the vested interests of groups like miners were not sufficient to warrant passing up the benefits of energy efficiency. The suggestion that conservation and efficiency must mean sacrifice and discomfort is now recognized by all but the dinosaurs as outdated and simply a red herring. Indeed, we have heard how high tech efficiency improvements can enhance comfort and economic productivity and create jobs to boot.

A point we raised in this committee's first phase that has now been developed with academic rigour by Dr. Berkowitz of the University of Toronto is that present subsidies, including the provincial debt guarantee, tilt the game in favour of Hydro's options and in favour of capital-intensive options, such as nuclear.

We heard from Mr. Lawson, who is a spokesperson for the nuclear industry. He agreed that the nuclear industry will survive with or without more domestic sales. I think it is fair to say that industry's future is not an issue that must skew energy choices in Ontario and should therefore not be of primary concern to this committee in these discussions. Mr. Lawson also conceded the point that it was no longer sensible to try to plan with a 15-year lead time.

That is an important point. Of course, he would not admit that a 15-year lead time is what the nuclear option entails, but I am confident that you have a more realistic view on that point.

A recurring theme that the committee has heard is that Ontario Hydro has enjoyed the envy of many other utilities due to its success in constructing one of the world's largest integrated systems, but we have also heard how the utility has been less than successful at providing us with the benefits of the marvelous efficiency technologies now available that we have also heard about.

It is worth spending a few minutes looking at some specific problems that Hydro has had in that regard and I hope Mr. Ashe, who I think managed to slip out anyway, will not find this too negative. We have some positive suggestions a little later. We will use the overhead to guide you through this.

Why is this highly praised utility having trouble changing gears? Perhaps it is because its strengths in the past turn out to be its weaknesses today.

The first point is that Hydro is a massive construction company and while its in-house capability to design and construct megaprojects such as eight-unit nuclear stations has led to some of the cheapest nuclear stations around--of course that presumes we do not have too many problems with pressure tubes, which may be highly optimistic--the point is that a megaproject construction company is not going to be the first off the mark when it comes to changing light bulbs for a living.

Let us not forget that Hydro has been in the construction business since its creation. It is hard to find a senior member of that organization who is not an engineer, and the people developing Hydro's efficiency in conservation numbers are graduates of Hydro's system planning and nuclear divisions. No one is suggesting that Hydro's staff has any ill intent, but we have to face facts: we are asking a horse to change colours.

3:50 p.m.

A second related problem is the inflexibility inherent in Hydro's scale. One might simply say that inflexibility and big decisions lead to big mistakes. It can also lead to big successes, of course; the question is whether we can afford the risk of the mistakes.

Perhaps there is no better testament to that problem than the fact that Hydro's demand-supply option study covers a period of time commencing seven years from now and ending some time in the next century. In the real world, where oil prices and long-term forecasts can both tumble overnight and both have tumbled overnight, we can no longer afford the big mistakes that will inevitably flow from such an inflexible decision-making framework.

I believe the committee understands all too well how big those mistakes can get. You have already had to grapple with the problem of Darlington, which was a megadecision that turned out to be wrong after about half the money was spent. Even the answer to the question of whether to spend the second half of the budget, in effect to get the whole station for the price of the last half, has been less than obvious. There is no question that if we could turn back the clock, we probably would reach a different conclusion today about starting the thing.

Hydro would differentiate between the decision to build Darlington and

the type of decision-making involved in its demand-supply option study by suggesting its DSOS will not require choices to be made now, rather it will simply provide a method or framework for making decisions. Nowhere in their proposal do we see a commitment to maintain outside input into the process once it is in place. To us, that implies a much-narrowed range of options after the initial phase, an inflexibility that we may pay dearly for.

Of course, if Hydro does use the demand-supply option study framework to decide to build Darlington B, they will be making decisions today for the year 2000. Even if they do not reach that conclusion, choices in the 1990s will be made within a framework that narrowed the menu of options back here in 1986 and will be dangerously out of touch with the realities of the 1990s. In fact, even initial decisions will be hopelessly out of date by the time they are made.

One of Hydro's planners was quite frank when, during the course of the transmission line hearings in southwest Ontario, he and I and Mr. Lovins discussed the problem of Hydro using out-of-date information. Hydro has to rely on the industry literature and industry studies that are sometimes years behind the leading edge of new technologies. I do not fault them for that approach because if I had to make one big decision for the whole province with public money, I would be very cautious too because a mistake will automatically be a big one. If we have to put our eggs in one basket, we had better make sure it works.

The point is not simply that Hydro takes big steps where the cost of a mistake is too high; it is also that Hydro is of necessity slow on its feet. I do not need to dwell on this because I think it is obvious to all that Hydro is simply not designed to make many fast and small decisions, the kinds of decisions one faces when talking about demand-side efficiency options.

My third concern is also obvious and that is that Hydro has a good deal of inertia. A less tactful commentator might have said that Hydro blindly defends its past decisions or even that its head is stuck in the sand, but you will not get me to say that. I am going to leave that colourful language for Mr. Macaulay and I will instead offer an example for you.

In the southwest Ontario transmission hearings, Hydro filed an environmental assessment that filled five or six four-inch binders. A key obligation under the act is for the proponent of a project to present alternatives to the project and alternative ways of doing the project so that the board hearing the case can assure itself that the proponent's choice is the best one for the people of Ontario and for the environment.

There is not one word in Hydro's document about strategic conservation--this is a hearing that is going on right now--nor is there any discussion of the benefits of cogeneration despite the fact that southwest Ontario, where we are talking about putting these wires, already has some 300 megawatts of industrial cogeneration and according to a study that Hydro commissioned itself, there is scope for lots more.

In this, I am afraid, all too typical instance, Hydro has not simply failed to meet the requirements of the law in our view; it has also let the province down by ignoring demand-side potential. You have already heard Hydro chairman Tom Campbell's response. Earlier in these select committee hearings, he characterized as "dangerous nonsense" our suggestion that efficiency could play a major role in reducing the need for new transmission and should be included in Ontario Hydro's formal documentation.

There are two issues here. First, Hydro will not admit that lowering load growth in southwest Ontario by implementing efficiency measures could let us get away with something less than three major transmission corridors through prime agricultural and recreational areas. It is arguable. Who knows? Hydro might be right; perhaps strategic conservation has no role at all to play in meeting energy service needs in southwest Ontario to the year 2000, which is what we are talking about in that hearing. I sincerely doubt that, and I think it should be apparent that it must play some role. It may not do away with the need for this project but it may lessen the damage.

That is sad enough, but I think the more discouraging point is that Hydro would not even put the option on the table to be discussed. That is what scares me.

A fourth problem is that Hydro has not just been ineffective at bringing on alternative forms of generation, or cost-effective megawatts as they have been referred to, it has also frozen out innovation, experimentation and the efforts of others to bring on those cost-effective technologies.

In the first phase of these hearings, this was addressed by Terry Burrell, who quantified the special treatment that Hydro gets but that independent producers of megawatts do not. Hydro is willing to offer its avoided costs as a buy-back rate for megawatts, not for megawatts. Logically, from its own point of view, Hydro bases the calculation of avoided costs on Hydro's subsidized reality today. Those are subsidies are not insignificant, as Dr. Berkowitz pointed out on Monday. He suggested \$436 million as the annual subsidy to nuclear generation in Ontario. That does not include advantages Hydro gets by not having to pay taxes its competitors do.

By ignoring the uneven advantage of these subsidies in its decisions and in its rates, Hydro eliminates competing technologies that may be as cheap or cheaper than the total societal cost of Hydro's preferred option.

If I can generate a kilowatt-hour for four cents and Hydro's subsidized costs are 3.5 cents, it will not pay me to do it. Hydro will not pay me more than its subsidized costs, even though Hydro's unsubsidized costs will be over four cents. To view it another way, my costs, if I were given the same subsidies as Hydro, would be less than Hydro's subsidized cost of 3.5 cents. Similarly, if I can save a kilowatt-hour for something less than the real unsubsidized cost of Hydro's power, it will not be in my interest to do so if my unsubsidized costs are anything higher than Hydro's subsidized price. The same holds true if you want to get into the business of selling efficiency technologies.

The other point Dr. Berkowitz made was that, since there are major subsidies to capital, there is a tilt in decision-making in favour of capital-intensive options. Those options are like the nuclear generation option. The tilt is also from labour-intensive options. That is important in this day and age. Even if we continue to take advantage of the province's access to relatively cheap capital, there seems to be no good reason for insisting that the interest rate advantage automatically flow through to Hydro's capital projects. There are several ways to keep the benefits without introducing what the economists call distortions; I am going to let Mr. Rubin address that later.

The fifth concern is that Hydro has been playing legislator. It has been deciding who gets favourable treatment and what options you and I can have access to.

I have already illustrated how Hydro's preferential treatment on the supply side puts competitors out of business and effectively narrows our freedom of choice as consumers. Hydro in its demand-side activities also chooses for us what technologies to subsidize, and again becomes decision-maker for the public instead of servant to the public's will. When government chooses to subsidize, the consumer's loss of choice may be merely a regrettable side effect; but when the choice is made by an unaccountable utility, it is an intolerable one. We did not elect Hydro and we cannot vote it out.

4 p.m.

It may well be a legitimate policy of a government to lure industry to Ontario, or indeed to encourage efficiency, with subsidies, but that is the role of the government, not of Hydro's board. Moreover, even with clear policy direction from government, Hydro has proven itself a poor choice as an implementation vehicle. For example, it is not allowed to discriminate between customers within one class; it has to use a broad brush. I do not think anybody argues with the merit of that. In the subsidies to attract new business, since it can only subsidize the commodity, and it can only do so for everyone--it cannot subsidize a specific industry directly--Ontario Hydro has encouraged tremendous waste.

Unfortunately, it is worse than that. Subsidies and policies that make commodities such as electricity cheap not only encourage waste and degradation of the environment, they also rob from the poor and give to the rich, because they are based upon use. They favour major users, who tend to be the wealthier members of our society, over lesser users, who tend to be the poorer.

Throughout this hearing we have heard of another problem facing Ontario Hydro. It has been called the problem of "nonparticipant losers". We would be remiss if we did not point out the irony of Ontario Hydro's holding this up as a reason it has avoided investment in technologies, which even Hydro admits may be more cost-effective. This is the same utility that is promoting baseboard heaters. We just heard about that. That technology lasts 30 years, according to Hydro's own evidence at the Ontario Energy Board, and adds substantially to the system's winter peak, eventually forcing system expansion that raises everyone's costs. It raises average costs for everyone. We might terms Hydro's approach to this issue as somewhat less than evenhanded.

My seventh and final point in this area is that what is best for Hydro is not necessarily what is best for the province.

Hydro bases its decisions to build capacity on long-term forecasts of load. We believe an institution such as Ontario Hydro will inevitably do that. It requires tremendous lead times in which to respond, both because of its scale and because of the technologies it favours. The problem is not simply that Hydro's crystal ball is as cloudy as everyone else's crystal ball. The problem is also that Hydro's forecasts become self-fulfilling prophecies, because Hydro will do what is best for Hydro. It will do its best to make its forecasts come true once it has committed capital to a plan based upon that forecast.

We get caught in a cycle. Hydro makes a load forecast on the basis, in large measure, of the history of load growth it has previously experienced. On the basis of this extrapolation, Hydro pleads the need for more facilities. In the absence of alternatives, which Hydro has managed to help keep off the scene because of its unfair competitive advantage, it gets approval to go

ahead. It then invests billions of what turns out to be our children's dollars in constructing a megaproject which, as the committee I am sure will appreciate, is not something that can easily be done in small, productive and flexible increments.

As reality unfolds in a manner different than Hydro's prediction, Hydro adjusts its rates to encourage use of its committed plant. We just heard about all those incentive rates. We see its advertising; it advertises electric heating to soak up Darlington. It offers incentive rates and discourages efficiency technologies. It is only natural we are going to respond by buying more electricity. Hydro then makes a new load forecast on the basis of our appetite, which Hydro itself inspired, and the cycle repeats itself. Hydro does not have complete control, for which we are thankful, so we see a little damping; but it is a very iterative process and Hydro plays quite a role in it.

Hydro all the while sees the risks of possible electricity shortfall or raised rates, but discounts the tremendous costs to the economy of discouraging cost-effective efficiency and of discouraging the building of multibillion-dollar megaprojects that could be unnecessary.

Hydro is suffering from a number of problems which are enumerated before you; I will not read through them.

I think it is fair to say that while you may differ with the wording of some of these, there is pretty widespread agreement on many of these points. There is also a lot of common ground about what it is we all like in energy options and structures. We all like options and structures that offer resiliency, flexibility, efficient use of all resources and a strengthened role for local communities. We like ones that respect existing social structures, the environment and individual choice.

Assuming the committee agrees with those goals, as I believe most Ontarians do, the difficult question is how do we foster these goals and not find ourselves back here in three or four years wondering why we still have the same problems. After all, what we share is not only a desire for constructive change; we also share a history of relatively unproductive attempts at reform by a variety of past committees.

This committee has heard a great deal about the technological revolution in energy efficiency, and I do not propose to repeat that evidence. I think it is indisputable that many of these technologies, and I am not suggesting all, are preferable to the supply options Ontario Hydro has traditionally relied upon. The committee has gone through some exercise itself, trying to rank these different options. In our view, you need not and indeed should not spend your time on a detailed weighing of the relative costs and benefits of the competing technologies. Any attempt you make in that regard will be frustrated by the inordinate complexity of evaluating a fantastic range of technology that comes in small increments applied in endlessly different situations. The difficulty of that task is exacerbated by the very real problem of a rate of improvement in those technologies that, in Amory Lovins's words, "Requires a looseleaf mind."

This has led us to conclude that to choose the preferred technology of the day is never going to be to choose any one technology. The choices we make today can never lead to the right choice for all time. Accordingly, we believe that the greatest contributions this committee can make are those that lead to structural changes, changes in the rules to the game, changes that improve our chances of reaching the right conclusions today and in the future.

In that vein, there are three areas we would like to discuss:

First, how do we assure that everyone can get hold of the information needed for good decision-making?

Second, what reforms respecting the regulator's role are needed to ensure that ongoing decisions are good ones?

Third, I would like to offer some practical steps the government can take in other areas that would be of lasting benefit.

I am going to touch briefly on the first two and leave the last area to my colleague Norm Rubin.

The first is information. Whatever Hydro's role, there is a need for independent gathering and dissemination of information. Any decision is going to be better with better information. It will help the regulators; it will help government; it will help consumers; it may even help Ontario Hydro. A good example is the labelling program we have heard about from a variety of witnesses. Unfortunately, it seems to be vanishing. Whether for appliances, industrial motors, cars or houses, labelling programs cannot help but steer people in the right direction. They have a key advantage over mandatory standards: they respect freedom of choice. We will not have some misguided regulator telling us to give up the frost-free fridges we have talked about at some length here. Labelling programs also educate consumers--Ontario will become a market for efficient technologies and not a dumping ground for albatrosses chased out of other jurisdictions.

We have all taken note when Amory Lovins or Tom Campbell has come before the committee and held up a real, live light bulb and it turns out that light bulb gives us a pleasant light and real savings. If that kind of information was out there--price ranges, paybacks and lists of suppliers--those technologies would become commonplace. What we need to do is to make Mr. Lovins's looseleaf mind accessible to decision-makers, and that means large decision makers and small decision-makers.

I need hardly add that this role should not be centralized in the electric utility, which has an obvious conflict of interest. A government department may be the logical choice, presuming it is kept at arm's length from the influence of conflicting interests such as Ontario Hydro, so that it has good credibility as a source of information. It is important because independent information is not simply helpful to us in making good decisions; it also acts as a check on the potential for self-interested groups to abuse any special status that has been granted to them, such as monopoly status, or at least to look at the world through rose-coloured glasses, which may not be appropriate.

Accordingly, we recommend that the Ministry of Energy be given a clear mandate and sufficient resources to research and disseminate information about efficient technologies and that it be specifically charged with the responsibility of developing legislation to ensure labelling of energy-using technologies sold in all sectors. We do not restrict those comments to the electricity sector.

The second area I would like to touch on is reforms affecting the regulators.

In everybody's scenario for the future there is a need for some

regulation because at the very least the grid will remain a monopoly. One of our key concerns is that the regulator not become a captive of the regulated industry and that it not become somehow insulated from a knowledge of the competing interests at stake.

4:10 p.m.

While regulators must have the resources and power to do the jobs we are asking them to do, they should not themselves become a source of energy policy. The test to be applied by a regulator should be spelled out by the Legislature. Deciding upon a suitable test is, in our view, one of key decisions you must make. We have a simple suggestion: least cost. You must include in that externalized environmental and social impacts and have due regard for fairness amongst competing users of the grid. I should add that those users should not be limited to the utility. Everyone should have to play by the same set of rules.

We strongly advocate enhancing the accountability and representativeness of the regulatory boards, all-party appointment procedures and the inclusion on each board of representatives from the critical public; these measures would be a good start. Resources must be made available to less-moneyed interests so that they can effectively be heard by the boards dealing with these highly complex matters. The gas companies, I noted, were not particularly fond of that.

As counsel for Energy Probe, I can state that there have been a lot of hearings that we felt our public was quite interested in having us attend, but we were not able to because we could not afford it. I can see why that might please the gas companies but it does not please us, and I think it was clear from Mr. Macaulay's comments the other day that it does not please him. He feels he gains something by having diverse viewpoints in front of him.

I think that both the Ontario Energy Board and the Environmental Assessment Board, which are really the two boards we are talking about here, will find their jobs much simplified if they have the benefit of well prepared and well presented evidence from the interests affected. There are a great many specifics with respect to things like the energy board that I have not touched on. You have heard from others. I think our position is known on those and I will not go into them. I am going to pass the wand to my colleague, Norm Rubin.

Mr. Rubin: Thank you, David and ladies and gentlemen of the committee.

I think we have heard a fair amount of what the problem is. I think we have a view that I hope is moderately common of what it is about the status quo that needs attention. After all, this is partly why we are here, not merely because Ontario Hydro asked everybody for their opinions on what it is going to do and this committee responded.

I hope that what this committee has heard so far is an indication that the questions run significantly deeper than that for this committee. Fundamental to those is the question "How can Ontario get closer to a lower-cost and lower-risk supply of energy, especially electricity and the services that electricity can bring?" I suggest that there are three partly overlapping approaches to that solution.

I call number one in general a levelling of the playing field; that is,

creating an environment in which the kinds of selective subsidies that you heard about from Professor Berkowitz, for example, are not selective; in which technological options compete fairly; in which parties compete fairly; in which you do not have to be Ontario Hydro to be able to build a certain plant at a certain cost; in which we can allow solutions within Hydro and outside Hydro to compete fairly; and in which we can allow various technologies, nuclear power and light bulbs, nuclear power and coal, small-scale hydro, megahydro, etc., to compete fairly. That is not happening at present. I think it is clear. In other words, let Ontario--not just Hydro, but Ontario--buy the best bargains first, to steal a phrase from Amory Lovins.

The second general area on which I think we agree some action is needed is improving the institutional framework. You have already heard a number of areas in which that might happen: make sure that information is available; get the government more involved in making that information available; make sure that regulation, when it happens, happens properly; make sure that regulation happens when it is needed; improve equity by bringing the costs and risks, on the one hand, and the benefits, on the other hand, together.

If the people who are going to benefit from a decision themselves bear the costs and the risks of those decisions, you do not have to look over their shoulders. They will not do it if it does not make sense. If they do it, it is probably because it does make sense. If you have a bunch of people at 700 University Ave., saying, "My career path will be good if we follow path X; someone else will bear the costs and risks," you are going to have to look over their shoulder until you are blue in the face and they will still scheming how to outfox your regulator. You have a system framework problem there.

Third, and I am afraid that for the committee this might be the largest of the concerns and for me and for Energy Probe it is the least of them, a need is to change the actual mix of decisions and of technologies; that is, to tilt towards the technologies that are now being unfavoured, to pick your favourite, whether it is a lightbulb or whatever and get Ontario Hydro away from its hobby horses such as nuclear megaprojects.

I submit that if you take the priorities in order, that is the one that this committee and this government do not have to solve. That is the one that solves itself when you get the rules right.

I would like look now at two classes of solutions, and I will try to hurry through this first page because the hour is late and because the headline gives away the fact that it is not worth, in my view, spending a lot of time on. In fact, the reason these are up is that I think they are superficially attractive, many of them. I call these, solutions that will not work or will not work for long.

The first class of solutions is reforms that leave the institutional framework intact. For example, tell Hydro, firmly, to do what is best for the province even if it is not what is best for Ontario Hydro. This simply flies in the face of a basic principle of human nature which I would state as follows: any arrangement that depends on any actor doing what is not in that actor's best interest will surely fail. I could say that again; I hope I said it slowly enough that it got through. I think there is no way out of that rule.

Telling Hydro to do what is not good for Hydro is whistling in the wind. Hydro has not acted the way it has acted to date through inadvertence, through

stupidity, through error, through not paying attention to what it did or by accident. It has done what makes sense for Hydro. Whatever faults we have found in those actions are not faults of inadvertence, they are faults of the rules that Hydro is acting very well by.

Reform 2: Put better people in charge of the decisions but in the same institutional framework. The problem here is that this solution misinterprets the problem as being a problem of bad people. Hydro's people are already nice enough. Even exceptionally saintly people can very seldom overcome bad institutions even for a short time.

I will not dwell on the experience of the Tennessee Valley Authority, which had a remarkable chairman who loved conservation and set out to turn that organization on its head and continued building a bunch of megaprojects that made absolutely no sense, except, they thought at the time, to the organization. He did not turn that organization around. That is still one of the most rotten organizations in North America, I submit. It has done incalculable harm to the Tennessee Valley, which is still the poorest area in North America and largely because of, not despite, the Tennessee Valley Authority.

The attempt to solve our problem by appointing a David Freeman to be chairman of Ontario Hydro is missing the boat. It did not work there--

Mrs. Grier: How about a Norm Rubin?

Mr. Rubin: Norm Rubin would not do it either. With respect, I think I would change things for a couple of months, maybe a year, until I had moulded into the job I was asked to do, and that job is to serve Ontario Hydro. That is what the chairman does for a living.

4:20 p.m.

Number 2 under the general class is what I call centralizing reforms that depend on constant attention. These have a general characteristic to them; especially the first two. These first two, especially, assume falsely that choices of technologies can and should be made in or near Queen's Park for the whole province. I think Mr. Poch has spoken enough about the folly of that and I need not dwell on it further, but there is another aspect of these that also concerns me.

Leaving these decisions in the hands of this committee, in the hands of the Legislature or in the hands of a regulator, in order to work for long, depends on a level of public interest and vigilance that is simply not realistic to expect, excepting crises. When we get a nuclear meltdown, we will have full attendance at the nuclear hearings. If the province's credit rating drops again, and drops because of Hydro's debt; if electricity rates triple--you know when things are bad enough that electricity issues become public issue number one--then this kind of framework will work very well. Then every legislator will know what his constituents want on this and will not have any choice but to follow that public will. As long as these issues remain public issue number nine or 10 and if we wait for the public to scream for the one obvious good decision, we will continue to get rotten decisions.

I will deal with these quickly: the demand-supply decisions in the hands of the Legislature. I think I have stated my main concern about that. I just do not think this is a high enough priority item for the Legislature to want to divert its attention to on the nitty-gritty level.

Put the demand-supply decisions in the hands of a regulator? This one I think, frankly, has a little bit more to attract it because a regulator can put a great deal of time into this issue. If you are attracted to this one, then I hope you are attracted to the technical fixes that my colleague suggested as ways of making regulators themselves accountable and responsive.

If we put all these decisions into the Ontario Energy Board as currently constituted, one has to start asking the question, who are these people? Who elected them, how do you unelect them, how do you influence them? We all have our hobby horses, we all have our pet projects, we all have ways of looking at the world, we all have different ways of looking at the world. How do you put my kind of people, your kind of people on the Ontario Energy Board?

There are ways of making that happen. Intervener funding, cost awards, a number of those other structural solutions to regulation also help get good answers out of regulators; but again, making all of the regulatory decisions fails in a number of regards, including that you have to make them all at one spot. You are not going to capture these technologies--you are not going to capture these options--by doing that.

The last thing I have as a solution that will not work, or will not work for long, is one that I am very fond of, except it will not work for long. We can make a lot more progress than we have in this, but we cannot get to the point that makes sense without changing the rest of the system. That is on the matter of buy-back rates, and buy-back rates specifically have to do with parallel generation, with getting other people into the grid. In order to get best bargains first in electricity supply, you have to treat supply technologies that are outside of Hydro as favourably as you treat supply options that are inside of Hydro.

As Dr. Burrell indicated in the first phase of the hearings--at that time, Hydro was paying something like 3.3 cents a kilowatt-hour for parallel generated electricity--the buy-back rate outside of Hydro would have to be more than five cents a kilowatt-hour. I believe the number was 5.5, but I have not doublechecked it. Hydro would have to pay more than 5 cents a kilowatt-hour to somebody outside of Hydro in order to make happen the same technologies that Hydro can do at 3.3 cents a kilowatt-hour. This is simply because we give so many subsidies to Hydro.

Hydro gets the provincial loan guarantee, somebody else does not. Hydro does not have to pay taxes, everybody else does. Hydro does not have to provide a return on their equity, everybody else does. You go down that list of freebies we give to Hydro and something that really costs a 5.5 cents turns out to look like it costs only 3.3 cents a kilowatt-hour when it is in Hydro. So you do not get the best bargains first when Hydro pays 3.3.

Why do I say this solution will not work? Dr. Burrell was implying that if only Hydro paid 5.5, we would get best bargains first. The problem is that as soon as you try and do that, you end up with a mare's nest of embarrassing problems. You end up paying somebody more to generate electricity than you are charging him to buy electricity.

Mr. Haggerty: Why get into cogeneration then?

Mr. Rubin: In fact, it would be a great deal for somebody to get into cogeneration, but instead of generating for themselves they generate for the grid where they can make 5.5 cents a kilowatt-hour; they may be paying only three or four for the electricity they buy. Just wait until the Toronto

Sun or anybody who takes an outside view of this gets their hands on that. What are we doing here? We are selling something to these people at four cents and we are buying back the same stuff at 5.5 and you cannot tell the difference between the stuff you are selling and the stuff you are buying.

Anybody who thinks that is a long-term solution, or even a short-term solution, is kidding themselves. You can get up to the price that you are charging for the thing. When you get past that, and you have to get past that, you have to pay more in order to level the playing field. In order to get best bargains first, you cannot leave the buy-back price at the selling price. You have to go past it. You cannot go past it because you end up with situations that, when you look at them in isolation, are ludicrous.

That is a serious problem. It is not just a marketing problem, I will maintain, it is a serious problem. In other words, you have to make two numbers the same and there are three ways to do it. One is to lower the high one; another is to raise the lower one; the third way is to do both until they meet in the middle. If all you do is raise the number that is artificially too low, in this case, for very good, practical reasons you end up with a situation that goes tilt. You have to do something else.

That brings me to solutions that may work. Would you uncover these one at a time please? Just put a piece of paper over it so I can talk to the one.

The first one is a kind of megasolution, perhaps I should call it a metasolution; it covers all of the others. I do not think that in the remaining three or five or 15 minutes that we are going to spend on this today or the remaining time this committee is going to spend on it, you are going to hammer out exactly what should be done. This is a task that this committee and the government should delegate to a representative task force. Every sector in the province that is deeply involved in this should be invited to sit down together, look at models from elsewhere, look at these various solutions and try to dot the i's and cross the t's after choosing among them.

The next one is specifically what might happen and what I believe must happen in order for the playing field to be level and for the problems to be solved. Ontario Hydro should pay the profit on its electricity exports to its shareholders and not to its major power consumers or to power consumers in general as it now does. Right now when Hydro exports, it makes money on that. That money goes to lower electricity rates. Who benefits when you lower electricity rates? Those who use the most electricity.

Again we have Robin Hood running in reverse. The Association of Major Power Consumers of Ontario, whoever they might be, are not the owners of Ontario Hydro; we are the owners of Ontario Hydro. We should be getting the dividends from the profits that Ontario Hydro makes. They should not be used to encourage waste and discourage efficiency improvements, self-generation and parallel generation, all of which they now do.

Mr. Cureatz: On a practical basis, they are trying to get the money back.

Mr. Rubin: I beg your pardon?

Mr. Cureatz: On a practical basis, if you are not going to use the money to lower the price of electricity, are you going to send everybody in Ontario a cheque?

4:30 p.m.

Mr. Rubin: Actually, I am getting to part of that in a moment. There are some interesting discussions about how you should distribute dividends to Hydro's owners. One way, probably the simplest way, is to put it into the general revenue fund. I think that would have a lot of political support as long as somebody could actually see a tax reduction somewhere that offset it. If not, I think I would be pilloried for having suggested it, and the rest of you would not do so well either. I think another attractive way is a quarterly cheque per Ontario taxpayer.

Mr. Cureatz: And every member could send it out under his letterhead.

Mr. Rubin: This is clearly for the task force to discuss.

Mrs. Grier: Is that not a bit like Social Credit?

Mr. Rubin: As I understand Social Credit, and I am certainly not an expert, it may be. I am afraid I do not know enough about it for it to be a bad word in my book; so perhaps we can talk about that some other time.

The Acting Chairman (Mr. McGuigan):/The Liquor Control Board of Ontario does that.

Mr. Rubin: Yes, if it wanted, the LCBO could sell liquor at cost. We would all have cheaper booze. The LCBO does not. Rather, it runs the thing more as a business than Ontario Hydro runs its business.

I maintain that the easy one on this is exports. I am getting to the rest. I tried to order these more or less in order of how easy they are so that the lulus--those that I think you are not ready for yet and will not be ready for until the next hearing--are down at the bottom.

Third, tax or take away the provincial loan guarantee. Again, the logic for this is that it is taxpayers who are providing this and it is major power consumers and export customers who are profiting from it. The costs and the risks come to me; the benefits go somewhere else. It is not right, it is not efficient, and it means we cannot get the right signal out there for efficiency, for parallel generation, for self-generation and for all those other things.

The solution? Fix it; tax it away or take it away. Taking it away is not attractive. I think you have heard a great deal of testimony that we would not come out ahead if we simply said nobody can use the provincial loan guarantee; it is a resource, and if you do not use it, you do not get it. I will accept that logic for the time being and say in that case, simply tax it away.

In other words, if it is something that is worth a lot of money that I am providing by taking the risk, then lower my taxes for it. That not only levels the field between Hydro, which gets the provincial loan guarantee, and everybody else, who does not, but also straightens out the imbalance within Hydro that now tilts Hydro in the direction of capital-intensive options by subsidizing capital instead of subsidizing everything. We do not subsidize labour costs for Hydro, which we presumably would if we thought unemployment were important. Instead, we subsidize capital as if we think the provincial debt is too low. It does not make sense.

By the way, I am sure it is not lost on the members that many of these have the effect of raising the unit cost of electricity. With that, I think

there is a very real human need and a very real political need to offer relief; that is, if all you do to your voters is make them pay more for electricity, they probably will not thank you for it, and in a democracy you basically cannot get away with it, nor is it necessarily a good thing to do so.

I suggest that relief for all of these should be granted to domestic customers through dividend payments to them as Hydro shareholders and to commercial and industrial customers through direct rate relief funded by the proceeds of those reforms that raise electricity rates. In other words, you are collecting extra money; start out by giving most of the commercial and industrial share back to commercial and industrial customers, and phase that out over something like five years. Additional proceeds, which in the case of industrial and commercial customers would increase over those five years, should go either to the general revenue fund to reduce income taxes or directly to each citizen or resident of Ontario.

Mr. Haggerty: Why would you use it to retire Hydro's debt instead of giving it to the consolidated revenue fund?

Mr. Rubin: I think the question of whether the consolidated revenue fund--

Mr. Haggerty: In the long run you would be reducing the cost of hydro over the years. In the next two years down the road, the rates should be lower rather than increasing.

Mr. Rubin: With respect, I suggest it is always an option for the government to use money from its consolidated revenue fund to reduce Hydro's long-term debt. There would be more money available for it. I think it is the people who administer the consolidated revenue fund who should make that decision. I am not sure I would speak for it, but let us discuss that after the money goes where it first should go. If it goes straight to reducing Hydro's debt and that is all you do, you are once again lowering Hydro costs as a result because the carrying cost--

Mr. Haggerty: The main thing is lowering the costs.

Mr. Rubin: Again, every time you lower electricity costs, the benefit from that does not go to you and me, because we do not use enough electricity to get our share of that benefit. The benefit goes in proportion to the kilowatt-hours you use every month. There are big fish in that pond, and we are not they. Those big fish do not own Hydro any more than you and I do, but they now get the dividend cheque. That again is the reverse Robin Hood that we are engaged in here and that we should get out of for a number of reasons including that it distorts our entire energy economy.

Mr. Haggerty: That goes back to the point I raised with you before. If you can get the variations in the rate structure for a preferred group of hydro users from one cent per kilowatt to four cents per kilowatt--it is almost below the cost of production, you might say--then why would anybody want to get into cogeneration if you can buy it cheaper than getting into it that? Everybody will not be able to sell it back--

Mr. Rubin: That certainly is a problem, but solving that problem does not address the point that I was making. If everybody paid the same price per kilowatt-hour for electricity and you decided to take a benefit of ownership of Ontario Hydro like a profit that they are making and distribute

it to everybody in proportion, distribute it by lowering electricity prices, you still rob from the poor and pay the rich.

If everybody pays the same price per kilowatt-hour and you say, "Great, we have made enough money from sales to New York that we can sell electricity at four cents a kilowatt-hour instead of five cents a kilowatt-hour," then the chemical companies save millions of dollars, I save \$1.50 every two months, you save \$1.50 every two months and the big users and the rich folks who are using the electricity to heat their swimming pools or whatever and leaving all the lights on get more money than the poor people do. That is not only an artefact of the price structure we now have, it is also a problem when the profits from profitable activities which are the result of hydro ownership go to hydro users rather than to hydro owners.

Mr. Haggerty: I can see your point on it, but if you increase that hydro rate to the industrial and commercial users, the end result or the end use is that the consumer will be paying more because that pass-through will go to the consumer. The question is, are we any further ahead?

Mr. Rubin: Since the consumers are also owners of Ontario Hydro and some of them consume more than others but all of us own Ontario Hydro equally, I maintain that you get a huge increase in equity as well as the spinoff increase in energy efficiency. That is, you solve this problem, for example in cogeneration and buy-back rates, which I maintain is otherwise insoluble.

You also end up helping individuals in Ontario by undoing a subsidy now which makes no sense. It does not matter how long I listened to Tom Campbell trying to explain why taking money from poor people and giving it to industry is a smart thing; I do not believe it. And if it is done, I would maintain that it should be done by the government explicitly and not by Ontario Hydro.

Mr. Haggerty: We should use Mr. Sargent's lifeline bill--

Mr. Rubin: If I may proceed--even I may have to leave soon--my next suggestion for a solution that may work is, on the local level, to allow municipalities to run municipal hydros as they and their electorates see fit.

Some of you may have followed what is happening in North York now. North York wants to run its hydro and wants to raise its hydro rates to generate a profit for hydro so it can have lower taxes in North York. That may or may not be what the electorate of North York would prefer, but right now it is apparently not permitted by the Power Corporation act and would not be permitted by Ontario Hydro, which is the sole regulator of municipal hydros. The Ontario Energy Board does not even have oversight function on that. That is a serious problem that should be changed.

4:40 p.m.

The next point, and here we get into these dividends and more of the profit, is to change Ontario Hydro's mandate to make a fair return on its equity which is, after all, our equity and have it pay dividends to us, its shareholders, and the municipal hydros. Right now, the book value of Hydro is approximately equally split between the municipal hydros and the public of Ontario. We should be getting a return on our investment. We are not. Instead, we are giving it to power consumers in proportion to their power consumption. Now we are all meeting to try to figure out how to fix that. The obvious way to fix it is to fix it.

The next point is that in addition to paying dividends to its shareholders, Ontario Hydro should pay income tax on the profit. In other words, it should be treated like a business and not like a sacred cow. The corporate income tax should go to the consolidated revenue fund, where it could be used to offset other taxes or to increase services, whatever the government of the day believes is the public will.

There is a choice on the next point. I have already mentioned in the easy category that we should collect sales tax on exports. Now I am getting to places where the shoe might pinch a little more. We should collect sales tax on domestic electricity sales, as many other provinces do. I have not brought the list. Some of them choose to charge all electricity customers sales tax. Some let the individuals off the hook and charge sales tax only to commercial and industrial users.

If the decision were made to collect sales tax from domestic users as well, there could be a directly offsetting rebate--income-tested, if you like, as we now subsidize rental or make an offsetting tax credit in Ontario on the provincial tax form. We could do the same for electricity to make sure that individuals are not hurt.

Mr. Haggerty: Is there not a sales tax now that is hidden in the cost of hydroelectricity generation in Ontario? These are water rentals that you do not see reflected in the chemical industry or in any other large corporations--you might even say municipalities--that are using water. There is no tax on that use. There is a hidden tax.

Mr. Cureatz: Let him finish the presentation and you can ask your question.

Mr. Rubin: I maintain that there is a difference between a sales tax and a resource rent.

On the next point, we may be getting into tougher stuff, but this is here because it is going to work and because anything short really does not do the job. We should separate the institutions that generate electricity from the institutions that transmit electricity.

The gist of this proposal is part of the heart of our book *Power at What Cost*, which is available to anyone. If you have not got a copy yet, I will provide one, including this one. The gist of this suggestion is that transmitting electricity from place to place has to be done by a commonly held common carrier monopoly and therefore has to be regulated. It is now not regulated.

Generating electricity is something that there is no trick to. Anybody can generate electricity. Some can do it cheaper. Some can do it better. Some can do it quicker. Some can do it at higher risk. Some can do it at lower risk. It is nothing special. There is nothing more special about making electricity than there is about making shoes or bread or table napkins. Anybody can do it.

There is no reason for Ontario to institute a monopoly to say that only one party can do it. How you give everyone else access is one of the things we are trying to figure out here. How you make Ontario Hydro act more as if it were one of many players is one of the things you are trying to grapple with here. Those are parts of the problem. Part of the solution is simply to fix it instead of beating around the bush. You fix it by separating off the generation function from the transmission function.

Incidentally, in separating the generators off, the municipal hydros have a vital role to play. The fact that they now own half of Ontario Hydro means they are decentralized and publicly owned entities that could take over the generation function--compete with each other, self-generate, parallel generate--and do that independently of the grid.

Finally, the grid itself has to be mandated and regulated to be a brokerage and a common carrier. It has to be mandated to treat all generators and all purchasers fairly and equitably. Recognizing the fact that we all can generate electricity, there is no reason why some of us should get treatment that others do not. The grid should treat us all fairly and charge carrying costs and function as a brokerage.

This is happening in other jurisdictions; this is basically the way Sweden, Florida and to some extent Alberta buy and sell power. It works and it solves the problems for which you are tempted to look at alternative solutions. I maintain that these are the solutions that work.

Mr. Sargent: This presentation is what this committee is all about. It is a damned shame that the chairman and the vice-chairman were not here. I think we should go through this thing again with Mr. Rubin, because this is damned important to us.

Mr. Cureatz: I will make sure they read Hansard.

Mr. Sargent: That does not matter. This is what this committee is all about and all these weeks we have been working towards this point and that is the answer. I am not the smartest guy in the world but I want to congratulate you--

Mr. Cureatz: Take it to the Minister of Energy and just have him implement it.

Mr. Sargent: It boils right down to the bottom line and I thank you very much.

Mr. Chairman: Are there further questions?

Mr. Moore: Mr. Poch, I was interested in your comments about labelling versus standards. I was a little surprised that you came out rather negative about standards. We have had many witnesses speaking in glowing terms of standards and the advantages that they give, for example, advantages in terms of utility planning; you know the maximum amount of electricity consumed if new appliances are used. Yet, you seem to be negative in that area.

Mr. Poch: Our concern is that standards are ultimately draconian. You are putting out a law saying, "you can do this and you cannot do that." I think laws are fine when you are telling people they cannot do something that is, of necessity, harming someone else. That is exactly what laws should do. Right now we have a situation where, when someone wants to plug in an electrically heated house and they are not having to pay the real price of that, they are harming other people. That is a good case for maybe having some standards.

However, once you get people internalizing all the costs of their activities, which is what we would like to see, then standards become unnecessarily draconian. Especially if you can do something that few could object to, which is go out there and have a really rigorous information

campaign--a labelling campaign. That is not a big cost; we do not how effective that would be. Up to now that, we have had such a soft-pedalled approach to this, it is certainly worth trying that first. We have the luxury of a few years, as Hydro has indicated, and this is the kind of thing you can get up to speed pretty quickly. It would build momentum in time. It could be quite effective.

Mr. Moore: Would I be correct if I summarized your statement as saying you are against standards if electricity is priced what you would call appropriately? In other words, if some of these taxation measures are added to electricity to level the playing field, then you are against standards.

Mr. Poch: Yes, absolutely. I would not suggest that what you do is impose standards and then worry about getting electricity to be at the price it should. That is the opposite order.

4:50 p.m.

Mr. Rubin: If I can add a footnote to that, I do not think the price alone gets you to the point where the playing field is level. We would like to make that clear. Access to capital, which maybe you can even out as a price mechanism--a number of people have mentioned that consumers often need a very fast payback period before they will invest in their side of the investment, whereas Ontario Hydro uses an extremely long payback period when it invests in their part of it.

Again, I think you want to change that on both sides, lower the high one and raise the lower one. Fortunately, to some extent there are mechanisms working here and working better elsewhere, such as third-party financing, where somebody who is willing to take a longer view of the payback period can come in and help somebody else to save electricity.

Also, if we reformed Ontario Hydro and got rid of the unaccountable structure we have now, they would not use the kind of long horizons they use in their paybacks. You would address that from both ends to bring them together where they still do not come together. In other words, where some Queen's Park number-cruncher finds that we could still do something cheaper by making everyone insulate but darn it, even though they are paying the right costs, they do not want to insulate; that is the right answer. The right answer is that they do not want to insulate; it is too much nuisance.

As far as I am concerned, in a democratic country people have the right not to insulate. I know people who are neurotic enough that unless they see steam coming off their swimming pools, they are not happy. When I am subsidizing that, it makes me mad. When I am not subsidizing it, I see no reason to make them crazy when they are happier spending it on that instead of going to the movies or instead of increasing their savings or whatever. As far as I am concerned, that is how we should be doing things.

Mr. Charlton: Can I have a supplementary?

Mr. Poch: If can just add first, when Norm says, "If I am subsidizing that," I think you should include in that "or if the environment is taking a toll." These people are not having to (inaudible). That certainly is a factor these days.

Mr. Charlton: That is why I see the contradiction in what you are saying. I understand what you are saying on the front side, but there seems to

be a contradiction on the back side in terms of this question of regulation or standards or whatever aspect of it you want to get into. Even if you have removed the subsidies, as you have suggested, either by taxation or whatever other method and you have equalized the prices, you have bumped up to the real price, as long as your rate structure is distributing the costs of the system. It is being cranked until they see steam coming of their swimming pool and it is affecting the need for the next increment of generation, which is pushing the rates up, are you not going to pay part of that cost?

Mr. Rubin: I think the price structure that the grid will charge can reflect the actual costs--

Mr. Charlton: They may be actual costs but if the misuse of heating that swimming pool causes you to have to bring on the next increment of more expensive generation that was unnecessary if you did not overheat that swimming pool, is that person's misuse of a heated swimming pool costing you money?

Mr. Rubin: First, I would like to say that when you say "misuse" twice and "overheat" once, you are making a judgment that I am not sure is best made at Queen's Park. As I say, I know somebody who heats a swimming pool the way I would not, to them it is not misuse, it is not overheat, it is the way it should be. I have another friend who has to search around all the community swimming pools before she finds one that is comfortable for her to swim in. Thank God, there is one that is overheated enough by your standards that she can swim without feeling cold.

Mr. Charlton: So use solar blankets.

Mr. Rubin: She does not actually own the swimming pool.

One can save money by putting a solar blanket on a swimming pool that is, by your standards, too hot, but we could regulate the temperature of swimming pools that would be the only way to minimize the amount of energy that goes into heating swimming pools. I would maintain that neither this government, the next government, nor the government after, has a mandate to do that. I do not think it is appropriate; I do not think it is necessary; I do not think it is legitimate. If it is legitimate today, it is legitimate because the alternative is having steam coming off one swimming pool and everybody else in the neighbourhood pays higher electricity rates.

Mr. Charlton: Again, Norm, that is where I see the contradiction. You are saying that the present distribution of the subsidies is weighted towards somebody else so that you are subsidizing somebody else's right to be inefficient.

Mr. Rubin: I would also say that if you fix the system--

Mr. Charlton: If you buy the efficient fridge because you are conscientious, and you pay more bucks for that efficient fridge but you allow somebody else to purchase an inefficient fridge, you are subsidizing them and their right to have that inefficient fridge.

Mr. Poch: You are not subsidizing them if you are being rewarded because you are saving electricity, you are saving the cost of the system.

Mr. Charlton: It bumps the rate up to the next increment. You are going to pay that higher rate.

The Acting Chairman: What we have here is a difference in philosophy.

Mr. Charlton: If you are going to talk about this whole question of who benefits from inefficiency and who benefits from efficiency you have to take it the whole way. You cannot go half way.

Mr. Rubin: Perhaps we would be going only half way if we did not limit people's access to the phone system or the highways or anything else where there is a similar commonality among some of the equipment as there is in the grid. If you have the kind of structural reform and rate reform that is institutional, or form and rate reform that I am proposing, I do not see why the person who sees the steam coming off the electrically heated swimming pool is being subsidized by his or her neighbours. Because I do not see that, I do not understand what the problem is.

Mr. Charlton: Their right to do that has caused the rates to go up.

Mr. Rubin: I do not see why it causes the rates to go up.

Mr. Charlton: They are the ones who will force us to build the next increment that we might not otherwise have needed.

Mr. Rubin: Everybody has forced it because if their next door neighbour decreased the use as much as they increase it--every kilowatt is of equal value to everyone else. You are not going to have grandfather clauses on kilowatts that say, "You raised the thermostat last, therefore you made us build another station." It is every kilowatt that adds up to something that you have to build for that is equally responsible for making you expand. You cannot attribute it to one user. You may have your favourite bugbear that says, "If only we had got rid of this person with the swimming pool." Or, "If only we had got rid of the oil refining industry in Ontario, they use a lot of electricity, we will solve the problem, therefore we will charge him."

Mr. Charlton: We are talking about efficiency and not whether the industry uses electricity or not. The question is do they have the right to use electricity inefficiently when they could be using it more efficiently?

Mr. Rubin: I am saying if it is to their economic advantage in a full-cost system to use it in a way that you consider inefficient, then you had better look at your definition of efficiency, because the whole idea of saving money where prices reflect cost is, if you do it the cheap way you are doing it the efficient way. That is what a market is all about. That is why we charge money for things.

When I am trying to figure out whether it makes more sense to do it this way or that way, I do not have to be an expert in that technical field. I can say, "Gee, I get the job done for \$2.50 this way and I have to pay \$4.50 that way." I would rather do it for \$2.50 and I end up with the extra \$2 in my pocket. It turns out that, unless somebody has made that system crazy by underpricing for something and subsidizing something else and overtaxing something else, then by doing it the \$2.50 way, I am doing it the easy way, the simple way, the way that uses the least resources and input. Trading off labour, capital and all those other things in a way that makes sense.

The Acting Chairman: I am going to rule that we have reached an impasse. I think we have pretty well covered it. It is five o'clock. We do not have a representative from--

Mr. Rubin: If I can just make one footnote. I think there are places where standards may well be unavoidable. There are places where you have a

system problem that is so nutty. The relationship say between landlords and tenants where people live in houses and move so quickly that it is not to anyone's advantage and the resale value of the house for some perverse reason does not reflect the investment although it should. There may be situations, such as that where to get to something close to what you think Mr. Charlton's right answer is, you have to say you are breaking the law if you do not at least go three quarters of the way there.

There is a need to use some common sense in applying these principles but as a principle, I think standards should be seen not as the first way to go but as the last way to go. They are a last resort. You are telling people that in Ontario you do not have the right to build a house that looks like that or to buy a car that looks like this. On principle, that should be done only where nothing else will do.

The Acting Chairman: Are there any further questions? If not, thank you Mr. Rubin and Mr. Poch.

Mr. Poch: Thank you very much.

The Acting Chairman: Is there any further business for the committee? If not, we will meet tomorrow morning at 9:30.

The committee adjourned at 5 p.m.

CA24N
XC 2
85N22

N-51

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

THURSDAY, APRIL 17, 1986



SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)

VICE-CHAIRMAN: Asne, G. L. (Durham West PC)

Charlton, B. A. (Hamilton Mountain NDP)

Cureatz, S. L. (Durham East PC)

Gordon, J. K. (Sudbury PC)

Grier, R. A. (Lakeshore NDP)

Haggerty, R. (Erie L)

Jackson, C. (Burlington South PC)

McGuigan, J. F. (Kent-Elgin L)

Poisinelli, C. (Yorkview L)

Sargent, E. C. (Grey-Bruce L)

Substitution:

Brandt, A. S. (Sarnia PC) for Mr. Jackson

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy

Richmond, J., Research Officer, Legislative Research Service

Snell, B., Consultant; with Canada Consulting Group Inc.

Witness:

From the Canadian Environmental Law Association:

Shryman, S., Counsel

LEGISLATIVE ASSEMBLY OF ONTARIO

SELECT COMMITTEE ON ENERGY

Thursday, April 17, 1986

The committee met at 9:45 a.m. in committee room 2.

ELECTRICITY SUPPLY AND DEMAND
(continued)

Mr. Chairman: Please come to order. Mr. Shrybman, from the Canadian Environmental Law Association, is with us today

CANADIAN ENVIRONMENTAL LAW ASSOCIATION

Mr. Shrybman: I have prepared a brief which you should find before you somewhere. My name is Steven Shrybman. I am a lawyer with the Canadian Environmental Law Association, or CELA. We are a nonprofit, public-interest organization. We dedicate our resources to using the law and legal institutions to further the principles of wise environmental management, resource conservation and public participation in the regulatory process. A large portion of our activities involves the representation of individuals and groups who would not otherwise be able to afford legal counsel.

In that capacity, we not infrequently act for people involved with a variety of energy matters, including matters that involve Ontario Hydro, proceedings before joint hearing boards and so on. It is in that capacity that we have acquired some familiarity with energy policy planning and implementation matters and have come to regard energy-related issues as being of major importance for this province.

I do not propose to read my brief, though I will read portions of it. I have prepared some overheads I will be getting to shortly that will provide you with the basic structure of the presentation I am going to offer. As I will be covering a fair bit of territory, if you have any questions, please feel free to interrupt me at any time and I will try to answer them.

We have approached the task of preparing this brief with considerable anticipation, recognizing this committee's rather unique opportunity to influence the course of energy policy and planning in this province, free from many of the constraints that have previously inhibited efforts at reform. It seems clear to us that this committee's response to the issues before it will have a significant and far-reaching impact upon the economic, social and environmental future of this province.

In undertaking this review of Hydro's demand and supply options study, we believe this committee has been correct to identify the importance of addressing the context within which system planning decisions will be made. What is to be Hydro's relationship to government and the regulatory institutions that might oversee and direct its affairs?

We have participated in the consultation process that Hydro has convened with respect to its study, and our first impression was that there still seems to be a striking absence of clearly delineated policy and regulatory framework within which we might tackle the issues before us.

In our view, the task of addressing the system planning decisions raised by the demand and supply options study can only be undertaken when the political and regulatory decision-making framework is clearly defined. That is the first task, and it is precisely these issues with respect to which this committee's predecessors have given long and careful deliberation.

Reviewing the report of your first session, we were struck by the marked similarity of the issues before you and those that have been the subject of earlier inquiries and reviews concerning Hydro affairs. Yet, with respect to many of these issues, we believe there has been a broad consensus for reform in this province for several years. Here we refer to the deliberations of this committee's earlier incarnation in the MacDonald select committee; the investigations and deliberations of the Royal Commission on Electric Power Planning, the Porter commission; the comments offered by various administrative tribunals, joint hearing boards, the Ontario Energy Board and even Task Force Hydro.

Among our constituency, a frequent criticism of select committees and royal commissions is that they are initiated more to defer or diffuse politically controversial issues than to devise effective solutions to them. We submit that it might be possible for this committee to revive the reputation of those past inquiries by giving effect to the solutions with respect to which, for some considerable time, there has been general agreement amongst all those nominated to study the problem.

For that reason, in preparing our brief we began by reiterating the key recommendations of those earlier reviews. In our submissions, we have not attempted to debate again issues that have been so thoroughly canvassed. Rather, we have taken the lack of effective implementation of the reforms that have been identified to be the major difficulty at this point. Accordingly, our submissions attempt to identify mechanisms that would actually carry forward into practice many of the reforms about which there appears to be considerable consensus. In doing so, we believe we are able to address many of the key issues that this committee has identified.

I will put up my first overhead. It offers the headings that you will also find in the index. These are the four parts of our brief. This is to give you a sense of where I am going.

The first part of the brief deals primarily with the recommendations of the MacDonald select committee and of the Royal Commission on Electric Power Planning. There were common themes about which there has been general agreement for some time, as I noted. I will reiterate them in the first portion of the brief.

In the second portion, I will deal with the whole notion of accountability. If there is one single problem with the present planning and regulatory system that is a common theme of all those who have considered the system, it is what is described as the lack of "accountability" in the system. I have examined that notion in an attempt to understand what accountability means when the word is used in relation to electric power planning and what the essential elements are of an accountable system. I have tried to use those elements as a test to determine whether the system we have today is accountable and to test the forms that people have proposed to see whether the reforms would result in a situation that would be more accountable than the one we have today.

I will deal with accountability and I will look at the existing system,

much of which has been well described for you by Mr. Macaulay and by representatives of the Ministry of Energy. I will go on to suggest certain reforms to the structure of our existing system that would make the system more accountable and more responsive to the people of Ontario.

In the third part of the brief I am going to deal with energy and the environment, under a separate heading. I am going to talk about the Environmental Assessment Act, what it is, how it works and what value it has with respect to policy development, energy system and electrical system planning, and facility siting and approval.

Finally, in the last part of my brief I am going to deal with something I have described as being "energy and social justice." I will look at the costs of the system as they now are and at how they are distributed. Are they fairly distributed? Who gets the benefits? Who pays the cost?

Let me highlight what appears on page 2 of my submission. It is a summary history of the years 1971 to 1981 and the earlier reviews of Hydro affairs that have taken place.

The first that I note was carried out by Task Force Hydro in 1971. It was charged with the task of recommending realistic, practical and innovative ways in which the operations of Ontario Hydro could be made more efficient, more effective and more responsive to the changing requirements of Ontario. This is a common theme. You could almost substitute the authority offered the royal commission, the MacDonald select committee, Task Force Hydro and this committee and find that the problem seems to be characterized in the same way over the years.

The results of Task Force Hydro's recommendations were the establishment of the Ministry of Energy, the promulgation of the Power Corporation Act and an amendment to the Ontario Energy Board Act that allowed for the review of proposed Hydro rate changes.

After those reforms, and during the early 1970s, the planned and rapid expansion of Ontario Hydro's electrical system began to manifest some troubling economic and environmental implications for the province. Plans to escalate hydro rates dramatically and the troubles that Hydro was beginning to encounter in siting transmission lines prompted the government in 1975 to establish the Royal Commission on Electric Power Planning, chaired by Dr. Arthur Porter. It was charged with the task of inquiring into the planning of Ontario's electric power needs for the period 1983 through 1993.

Dr. Porter spent five years in a rather exhaustive investigation of virtually every facet of the electric power system and of the planning principles appropriate to its design and development, and he brought forward close to 100 recommendations. In May 1981 the Ministry of Energy released a 116-page report responding to those recommendations and accepting most of them. I will come back to those recommendations throughout the course of my presentation.

Realizing that Dr. Porter would take some time to complete his inquiry, the government perceived the need for an even more expeditious review of Hydro affairs, and particularly a proposed rate increase for 1976, I believe, in the order of 25 per cent. Under the chairmanship of Donald MacDonald, the committee soon concluded that a meaningful review of Hydro affairs required more than simply looking at that rate increase. Its mandate was subsequently expanded and a final report was released in 1976, 10 years ago. It dealt with

a broad variety of matters, including Hydro's accountability, a major theme of that committee's report, system planning concepts and the role of conservation in rate reform.

It is our belief, as I have indicated, that the recommendations of the royal commission and of the Macdonald select committee are still as valid today as they were five and 10 years ago and that this committee has, in a sense, an important opportunity to carry those recommendations forward, an opportunity that we submit it should take advantage of.

Let me then move on to consider the common themes that can be discerned from a review of those earlier reports. I understand that the committee's consultant has prepared a list of reference material, the first several items of which are the final report of the royal commission and the recommendations of the select committee. He has also kindly prepared for me the executive summaries of those reports. I believe they have been distributed to you.

Mr. Snell: They will be.

10 a.m.

Mr. Snryoman: They will be distributed to you.

The common themes that I would like to discuss, and the common themes with respect to which, I suggest, there has been unanimity, are three. The first is the need for effective government control and direction of Hydro affairs; the second is the need for greater regulatory control of Hydro affairs; and the third is the need for a new approach to planning that emphasizes demand management and conservation, as opposed to the traditional bias in favour of supply expansion.

Dealing with the first, being the need for effective government control and direction, the need for Ontario to develop and to clearly articulate government policy with respect to Ontario Hydro has been a major theme of every public review that has been undertaken of Hydro affairs. There is little more telling of the absence of explicit policy direction than this committee's own comments, offered in its interim report. You identify a serious concern about the planning process and about the delineation of operating and policy-making responsibilities between Hydro and the government. You express a concern about the absence of adequate public participation and you discuss the absence of sufficient incentives to promote efficiency and conservation or to give adequate consideration to alternative sources of supply of electric energy.

We believe your comments are so strikingly similar to the comments offered five years ago by the royal commission and 10 years ago by the Macdonald select committee that they are worth noting. Let me take you through them very briefly. On page 4, the first I reproduce is the royal commission's words on the subject. They describe the shortcomings of the present system to include the fact that "it does not provide for the development of a general policy on energy. Historically, government intervention in Hydro's planning processes has been essentially after the fact." You used virtually the same words in the briefing document for this session.

Dr. Porter went on to describe the problem in the following manner: "The responsibility for general policy on energy is clearly in the hands of government, particularly the Minister of Energy. Although...the Ministry of Energy is undertaking impressive and rewarding programs in the field of energy

conservation, its credibility with respect to long-term energy policy formulation is much less evident."

It is not surprising, Dr. Porter concluded, given the lack of resources, staff and time with which the ministry might undertake extensive studies. He went on to characterize the ministry's business as being "conducted in private" and its performance, "although subject to scrutiny and criticism in the Legislature, is not subject to direct public scrutiny. The result is that energy policies," and I would emphasize this, "have been somewhat fragmented, predicated on a short-term basis, and ad hoc."

That was five years ago. Let us see what the MacDonald select committee had to say 10 years ago. It identified "an urgent need...to set new objectives for Hydro's planning. The committee has concluded that it will be necessary for the government to provide firm policy direction to Ontario Hydro on an ongoing basis. Clear and ongoing policy direction has not been given to Hydro in the past." It offered the following recommendation, that "The government develop and clearly articulate government policy towards Ontario Hydro."

I add here, almost parenthetically, that apparently the recommendation of Task Force Hydro--even though many of them were implemented--that a "comprehensive and co-ordinated energy policy be established as a matter of high priority" has not adequately been carried forward, notwithstanding the establishment of the Ministry of Energy.

Mr. Haggerty: It is amazing what minority governments will do, is it not?

Interjections.

Mr. Chairman: Please carry on.

Mr. Shrybman: The second common theme that can be discerned by reviewing these earlier reviews is the need for greater regulatory control of Ontario Hydro. The absence of effective regulatory institutions to oversee Hydro's activities has again been a matter extensively commented on, and a broad consensus has existed for quite some time in favour of strengthening regulatory control. Dr. Porter stated it as follows:

"Existing ministries, institutions, boards and committees do not provide an open, independent, comprehensive review process involving the public, nor can they act in an advisory capacity to the Minister of Energy on the future development of the electric power system...(neither do they) possess adequate technical expertise to undertake these analyses."

He went on to suggest that the Ontario Energy Board become an Ontario energy commission with greatly enhanced regulatory authority and resources. The MacDonald select committee identified a very similar problem and the problem was also identified by Task Force Hydro. It is a common theme. Every five years we come to the same conclusion about the need for greater regulatory control.

The third major area of reform has to do with the need to reorient planning philosophy to give greater priority and emphasis to efficiency, conservation and demand measures. Both Dr. Porter and the select committee offered strong and unequivocal support to a fundamental reorientation of Hydro's traditional emphasis upon supply expansion. The royal commission offered a dozen or two recommendations dealing specifically with this matter.

The very first recommendation I reproduce on page 7 emphasizes the need to reorient planning strategies in favour of demand and to do away with traditional bias in favour of supply expansion. More than two dozen other suggested reforms address the need to establish the analytical resources necessary to the task, end-use data; the programs necessary to encourage implementation of efficiency measures; and various rate reforms designed to encourage efficient energy use.

Again, the commission's recommendations are virtually identical with those that the MacDonald select committee offered fully ten years ago. The words are as apt today as they were then:

"Ontario Hydro change its planning process to emphasize meeting Ontario's electrical energy needs after implementation of conservation and load management programs, with the minimum amount of new generation that is consistent with sound planning."

That was recommendation III-22. From the limited opportunity I have had to sit in on this committee, it must sound very familiar to you by now.

Mr. Haggerty: You could write the same report and get the same results.

Mrs. Grier: Different results, Ray.

Mr. Snrybman: In the select committee's case, fully 40 of its recommendations dealt with conservation and efficiency measures, including the needs I note at the bottom of page 7 and the top of page 8: to promulgate efficiency standards for buildings, equipment and appliances; to provide research funds for research and development and energy-saving technologies; to provide loans, grants and other subsidies to ensure employment of cost-effective measures; to utilize pricing policies to encourage load management and peak demand reduction objectives. That was 10 years ago.

In our view, the case for conservation and efficiency measures so thoroughly explored by the MacDonald select committee is overwhelming. Unfortunately, it stands in stark contrast to the efforts that have been made in this province to implement and realize these goals. We believe our collective failure to vigorously pursue the abundant opportunities that these strategies offer is primarily the result of an absence of an appropriate institution or institutions to pursue and achieve them. That is the problem as we understand it.

10:10 a.m.

In part II of the brief we will recommend the establishment of an Ontario energy conservation corporation that would deliver conservation in the same fashion as Ontario Hydro delivers electric energy.

Let me move then to part II of our brief to deal with the notion of accountability, which I will address under the following subheadings. I will deal with the basic principles of accountability as we can discern them, then look at the present system as I indicated and then suggest certain reforms that would make that system more accountable.

The legislative instruments and institutions that govern the affairs of Ontario Hydro were fashioned during an era when electrical system planning was undertaken almost exclusively by utility experts. Technical requirements

determined the nature of supply facilities. If you wanted to get from A to B with a transmission line, you simply drew a straight line between those two points and went about the process of expropriating land and building that facility. The social and environmental impacts of the project were virtually ignored.

Over the past decade and a half, we have slowly recognized the major public policy dimensions of matters relating to the size, scale and character of the electric power system. What we have traditionally regarded as the technical delivery decision, such as the generation mix of the power system, we now all recognize as being of major importance for the province's economic and social life.

Unfortunately, the institutions--and this is our theme--that determine the course of Ontario Hydro's affairs have not in either design or mandate been accommodated to this new perception of the planning process. As our review of the existing regulatory system will show, very little has transpired to remove from Ontario Hydro an exclusive prerogative with respect to a host of matters of vital public concern. As all who have reviewed Ontario Hydro's affairs have noted, the problem is one of a lack of accountability.

In our view, the notion of accountability is the single most important task of both the existing decision-making processes and the proposals for reform. An accountable electric power system is one that is responsive and responsible to the people of Ontario. It is fundamental to the notion of accountability that ultimate control or authority rests with those to whom the account is rendered.

For example, with respect to Ontario Hydro and proposals to increase its rates, Ontario Hydro is not accountable to the Ontario Energy Board even though it must present its proposal for review by the board. At the end of the day, Ontario Hydro is free to ignore the board's recommendation and even the ministry's suggestions with respect to the board's review of a proposed rate increase. In that respect, it is accountable to nobody.

Mr. Moore: Is it fair to say that Ontario Hydro is responsible to its own board of directors? It is an internal accountability, but that has often been put up as an essentially publicly appointed board of directors which is supposed to provide that accountability within the organization. It might be worth just touching on that at this point.

Mr. Shrybman: I do not understand or pretend to understand the internal workings of Ontario Hydro. I assume its board of directors does exercise effective control over the corporation. I have heard people comment that that control may not be as effective as it could be. For the sake of my discussion, I assume that aspect of the whole process is operating properly. You are correct to point out that there is one mechanism of accountability in all this; that is, the appointment of people by the province to Ontario Hydro's board.

At that point, as was correctly described by Mr. Johnson from the Ministry of Energy, those directors then owe a fiduciary duty to the corporation. They no longer serve the masses. They do not serve the people that appointed them and the corporation. They simply serve the corporation. In that sense, they are accountable to no one but the corporation. The essence of a corporate body requires that attitude of them, a single-minded devotion to the corporate objectives and interests.

Mrs. Grier: May I pursue that? I am sure Mr. Ashe would say that it is responsible to the government, that policies such as slowing down or speeding up Darlington were decisions of the government of the day that Hydro had to follow, and therefore that primary direction does rest with the cabinet.

Mr. Shrybman: I will shortly go on to describe, as I get into this part of the brief, the present configuration of where power is assigned pursuant to the Power Corporation Act. With respect to, say, large facilities, it is correct to say that the cabinet has the authority to approve or to veto any proposal to build a facility such as Darlington. With respect to Darlington, there is some accountability. It is to an institution that, I would argue, is ill equipped to come to an independent and informed conclusion with respect to a matter as complex as building a nuclear generation station, but nevertheless there is an accountability mechanism in the system now that I will describe.

With respect to rates, however, there is not. Cabinet has no authority with respect to hydro rates that I can find in the Power Corporation Act; neither does the Ministry of Energy and neither does the Ontario Energy Board. The only institution that has that authority is Ontario Hydro.

Therefore, I do not say that Hydro is utterly unaccountable--far from it. I say that with respect to a host of matters, such as its regulation of local utilities, it is utterly unaccountable; it simply accounts to nobody. But in other respects it does account to cabinet, and I will go very briefly through some of the things that Mr. Macaulay and Mr. Johnson have said here.

Mr. Chairman: Will you differentiate between formal and informal accountability?

Mr. Shrybman: I have a rather myopic perspective on formal accountability mechanisms and I am not particularly competent to comment on the informal mechanisms. I like to see it in writing, and that is in a sense the central theme of our submission. Set it out so that we all know what the rules are; that is our bias.

Mr. Sargent: Maybe the chairman can tell us about informal accountability.

Mr. Chairman: The chairman is not a witness.

Mr. Snell: The members might recall the presentation of the Ontario Energy Board. I think it differentiated very well between structure and process. Its structure, its responsibility, is to review rates, but the process with which it is saddled does not allow it to be effective at doing the job it has been set up to do.

Two elements you want to keep in mind as we listen to the presentation today are that there may be mechanisms at the end and final approval is required, and in that way Hydro says it is accountable. But the system is set up in such a manner that, to do that effectively, one might question it.

Mr. Shrybman: Let me just add to this that, as I understood Mr. Macaulay's remarks, he was talking about the timing of Hydro's own internal processes with the requirements of the legislation in terms of submitting a proposed rate increase for review by the Ontario Energy Board.

Let us say we reform the format and the timing so that the OEB's review

can be an effective review. Even then Hydro would not be accountable to the Ontario Energy Board, because the Ontario Energy Board does not have, as it does with respect to gas companies, a right to determine rates. It can simply offer a report to the minister and the minister does not have the power to determine rates, either. Only Ontario Hydro has that authority.

I am a little concerned with this portion. The upcoming portion of the brief on accountability is a little dry, but I think it is absolutely essential to what follows and to all of the substantive reforms that you might be more interested in, so please bear with me. I think these principles are very useful.

10:20 a.m.

When you try to apply the notion of accountability to a system as complicated as Ontario Hydro's, you end up with something that has to be multifaceted. The particular mechanism of accountability must vary with the nature of the institution or constituency to which Hydro is to be responsible. With respect to different matters, Hydro must account to the Legislature, to various regulatory institutions, to its customers or the public at large. Whatever the particular configuration however, we submit there are certain essential elements that must in all cases be present. We describe them under four subheadings. I think I will go through them in sequence.

We suggest that the first principle is that policy implementation and regulation be separate. An accountable organizational structure should separate responsibility for policy formulation and planning from program delivery and implementation. That rationale for this is threefold: First, a separation of functions recognizes the very different character of the two endeavours. The institutions necessary to develop provincial energy policy, on the one hand, and deliver electric energy on the other, are by character, expertise and structure quite different. That simply means that if I have a problem with my transmission line, and I actually have my own little transmission line out near Perth, I do not call the cabinet to deal with it. I call my local utility, because they have the skills to deal with transmission. I would suggest the skills necessary to deal with policy development are not the skills that are necessary or appropriate at all to the planning of an electric power system and the delivery of electric power.

The second rationale for separating the functions is that provincial energy policy must address a variety of matters beyond the ambit of any concern of Ontario Hydro, including other energy suppliers.

The third rationale for separating the functions is that a variety of the functions of an electric utility should be free from any political constraints. Whether a transmission line is built to service an isolated rural area should not be a matter with respect to which there are political decisions made. It is important to isolate, in a sense, the delivery of electric power from what might be political interference. It is equally important to do that as it is to allow the political process to articulate and delineate policy.

On page 11, I note as well that it is important to match the regulatory mechanism to the particular character of the matter with respect to which accountability is needed. That is the first principle: separate the functions.

The second one is that the authority and responsibility of Ontario Hydro and those who regulate its affairs be clearly and precisely defined by

legislation. This is material that Mr. Jonnson took you through, about Ontario Hydro being the creature of its constitutional instrument, the Power Corporation Act. It has no authority that is not set out in that act. It has no duty or obligation that it is not similarly defined. I reproduce clause 1(n) of the act on page 11. You might refer to it if you are interested. It is a rather unusual legislative provision. I have not seen one like it. It simply makes that point very clear for any who might read the act and be ambivalent about the matter.

If the Macdonald select committee and the Royal Commission on Electric Power Planning can be faulted, we suppose it is for failing to recognize more fully the need to provide explicit direction to Ontario Hydro by amending its incorporating document, the Power Corporation Act. In our view, for that reason it is not surprising, in the absence of those amendments, that many of the recommendations that were brought forward by the royal commission and actually accepted by the Ministry of Energy were not implemented. The Ministry of Energy accepted 88 of 99 recommendations from the royal commission, but it is not surprising that they really have not become manifest, because the legislative and regulatory changes were not made that would have brought them from theory to practice.

Let me read for emphasis something I offer on page 12 of our brief. That is that in a society committed to the rule of law it is vital that the rules by which our citizens and institutions are to govern themselves be clearly and unambiguously defined. They cannot ebb and flow, we suggest, with the particular inclinations of public officials or the political views of the day. While a number of energy policy matters must be left to the judgement of elected officials, the need to develop policy should not be and neither should a myriad of other matters necessary to a responsible and accountable energy delivery system.

Provincial energy policy should reflect the political judgement of those in power, but we have to have something that requires those in power actually to delineate provincial energy policy. That should not be left in limbo to be attended to only when there is some inclination to do so. Perhaps one of the strongest arguments in that regard is that you cannot develop provincial energy policy in six months. That tends to be the tenure of the select committees we nominate to study the problem. It requires an ongoing and continuous commitment.

The third principle of accountability that we urge you to consider is the need to provide regulatory institutions with sufficient resources so that they can carry out their respective mandates.

Many of you are more familiar than I with what I consider to be the bewildering complexity of many of the matters related to demand and supply options and electrical system planning. I suggest that the disproportionate resources of Ontario Hydro on the one hand, and of those seeking to influence and regulate its affairs on the other, has led many to describe Hydro as having a virtual monopoly on the technical information relating to the planning and operation of the province's electric power system.

That traditional imbalance of resources has been characterized--the problem is that what happens is we create a mystique of authority. Ontario Hydro is the only authority on electric system power planning and implementation. That mystique has repeatedly daunted those who must weigh the competing and very divergent views offered by Ontario Hydro on the one hand and by its critics on the other.

It will be no progress at all to bolster existing regulatory controls in theory alone. Clear legislative language must be complemented by the human and informational resources necessary to bring theory to practice. Therefore, the third principle is to provide adequate resources to those who are going to provide oversight and regulatory functions.

The fourth principle or element of an accountable system is that it must engender public participation. Much has been written concerning the utility of public participation in the regulatory process. Dr. Porter offered a rather excellent analysis of the rationale for the benefits to be derived from broadening the scope of meaningful public involvement in the regulatory process. That can be found in chapter 12 of the first volume of his final report. Dr. Porter characterized energy problems as increasingly "problems of decision-making rather than technology and systems operations." I think that is very apt.

We believe that is quite true. The problem is that there is a decision-making problem now. It is not a problem about whether we are going to build a hydraulic facility or a nuclear facility or a demand option as much as it is a problem of how we are going to make the decision, which institutions are going to make the decision, to whom they are going to account and what is going to inform the process.

10:30 a.m.

Mr. Chairman: I would like to go back to your second point for a moment. It is probably relevant here. What are you talking about when you talk about legislation that sets out the making of energy policy?

Mr. Shryoman: I will deal with this in some detail in the last part of this section. I am talking about an energy policy and planning act and in rough form, I set out what should generally be in that legislation. In other words--and I am not wed to it--I have developed a schematic diagram that describes the functions of the Ontario Energy Board and the Ministry of Energy. It simply offers an illustration of what this would look like by giving it legislative expression. I will come to that.

These are the principles I applied. That is why I am going through them before I tackle the existing system and my suggested necessary reforms. On the matter of public participation, the royal commission offered several recommendations that I will come to very shortly. I am on page 14 of our brief.

The commission went on to discuss the basic concepts that had informed its views of the value of public participation. There were three basic concepts that persuaded it. The first concerned the risks involved in electrical systems and their planning and implementation. There are risks associated with uranium mining, with the establishment of nuclear generation facilities, with flooding lands when we build hydraulic facilities and with a whole host of matters related to energy planning and implementation.

Dr. Porter concluded that making decisions about those matters required value judgements more than they required technical expertise, or certainly as much as they required technical expertise. I quote his conclusion here that value judgements "should be made by politicians, social scientists, the general public and lawyers, as well as by scientists and engineers."

In other words, people in the public, social scientists and doctors are

as competent to deal with issues related to risk as are electrical engineers. They should be included in the decision-making process when one recognizes that the decision-making process is about risks for society and for the environment to a significant degree.

The second basic concept that informed its view--and I am returning now to this notion of monopoly on technical information--was described by Dr. Porter as resulting in a debate between Ontario Hydro and its critics that was both undemocratic and a disservice to both sides. The commission noted that the result of this was a tendency "of policymakers...to ignore criticisms coming from the public which they deemed to be uninformed, and there will be tendency for the public to reject policies and decisions that they cannot verify." That is the cost and disservice of allowing only one side in the debate, the resources side, to adequately advance its case.

The third basic concept the commission discussed had to do with the benefit that can be derived from having diverse points of view. Dr. Porter characterized the properly functioning power system as one that was capable of responding quickly to emergencies and of anticipating predictable events. He argued that public participation would add significantly to the responsiveness and the resilience of that system. I have reproduced three of the recommendations he offered on the subject of public participation at the bottom of page 14 and at the top of page 15.

The first recommendation was that Ontario Hydro draw up joint planning processes with the public that would include the public effectively in the planning process, and indeed would often leave initiatives to the public. That recommendation was accepted by the government of the day.

The next recommendation had to do with Ontario Hydro and the suggestion that it make independent expertise available to those involved or who might be critical of its plans and designs. That recommendation was accepted in part by the government. It has not been carried forward and put into practice.

The third recommendation is: "The principle of funding of public interest groups from the public purse should be adopted in connection with energy and environmental hearings in the future. Only in this way will it be possible for disparate views to be aired adequately in public hearings." The government responded that this recommendation required further study. That was in 1981 and I assume that the government is still assiduously studying the matter.

I argue--and we argue often--that public participation is a two-way street. It is a way to inform the community so that the people might come to have some confidence that the proposal will have some significant impact upon the immediate environment or the character of the society that they will live in. We suggest--and I think this is abundantly apparent everywhere we look--that we as a society are no longer content to entrust problematic social, economic and technical matters to the private deliberations of experts and public officials. Experience shows that nothing is so likely to provoke scepticism and mistrust as a decision-making process closed to public view and participation.

That aspect of public participation is often recognized but another aspect often is not. That is that public participation is a two-way street; it is also a way for decision-makers and planners to have the benefit of critical points of view. Participatory processes are often regarded--and have been so described to this committee by some who have appeared before you--as a

nuisance that must be endured to allay the concerns of an uninformed public. We regard that view as unfortunate and we think it simply fails to recognize the enormous contribution that public involvement has made to the quality of a diverse array of regulatory processes.

I go on to offer an illustration, in pages 14 and 15, and I will simply highlight this very briefly. It is in regard to the contribution that has been offered by the soft energy path theorists to your deliberations, to the deliberations of the Royal Commission on Electric Power Planning and, indeed, to the deliberations of the MacDonald select committee. Those theorists put forward planning concepts of a sustainable and non-nuclear energy system linked to kind of democratic and decentralist ideals. They introduced new analytical techniques in end-use forecasting and they suggested new policy directions that would emphasize conservation and renewable energy technology. They expressed a philosophy that viewed energy in the service of mankind in a sustainable balance with the environment.

I suggest those notions are becoming increasingly current and we owe a debt of gratitude to those who have put them forward, particularly during a time when the notions were not current, were not accepted in our society and were not popular. If you look at the contribution those people have made to the process and the tasks associated with engendering their participation, I think you will find we have derived a lot of value for a very modest investment and the contribution has been invaluable in informing our choices. Even if we do not prefer the options that are being proposed by the critics of the conventional point of view, we certainly benefit from having heard them.

I could readily have found examples in the area of waste management and pollution control, and I do not have any evidence on this but I suggest that were you to interview members of the Environmental Assessment Board and of royal commissions that have conducted inquiries, they will tell you that public participation is much more often than not invaluable in identifying critical deficiencies in proposals. On occasion, the flaws are so great that the proposal is not approved.

Mr. McGuigan: If I may stop you at this point, I think there is a lot of acceptance of what you have just said. I believe the fear on the part of the government always is that public participation will be driven by money rather than by the necessity of putting forth a point of view. That seems to be the fear that governments have always had: this boon to the lawyers, creating a private industry of opposing everything that comes along; the money is available, so let us go at it. How do you deal with that?

10:40 a.m.

Mr. Shrybman: The way to deal with it is the way that some regulatory tribunals have been dealing with it for a while now: There was a list of criteria. In other words, you did not simply appear before a decision-making tribunal that had given you some money to participate, that had simply handed you a blank cheque.

The first person I am aware of who gave money to assist public intervention was Tom Berger. It was the famous inquiry he conducted into the Mackenzie Valley pipeline. He promulgated a list of criteria:

Is there a need? Does the group have a need for resources? The Ontario Natural Gas Association probably would not meet that criterion.

Does the group have an established track record of concern in this area, or is it just some johnny-come-lately to the scene that is attracted by the prospect of finding a little money to spend some time at a hearing for several months?

Is the interest that is going to be articulated by that group one that would not otherwise be before the tribunal, or are there five groups all trying to say the same thing?

It goes on and on; there were seven or eight criteria. They have been used. They have been adopted by the Ontario Environmental Assessment Board and by other regulatory tribunals. They work. The tribunals are happy with them, proponents are happy with them and my constituency is happy with them.

It is rather regrettable that there still seems to be this red herring that if we provide public funds for intervention, we are going to open a floodgate for all kinds of spurious, ill-informed and not-well-conceived public interventions. That has not happened; the criteria will prevent it from happening. As I will argue, public funding will simply make what is now a relatively inefficient process much speedier and much more effective, and we will get much better value for our money.

Mr. Charlton: It should perhaps be pointed out to the committee and to the government that the Attorney General (Mr. Scott) was the legal counsel to Mr. Berger and helped him to develop those criteria.

Mrs. Grier: Since the Attorney General is looking at the whole question of intervener funding, I am sure this matter will be resolved shortly.

Mr. McGuigan: I put that proposal to Dr. Parrott years ago and he said he was not going to be involved in a boondoggle. I am not quite sure what a boondoggle is, but at least I got what he meant.

Mr. Smyrnan: Let me just go on. There is concern about the costs of the public hearing process. That is a very legitimate concern. Let me briefly note what the costs are of circumventing a public hearing process.

The first one I think everybody is well aware of, and that is you run the risk of provoking a public reaction that will stymie development, cause greater delay and generally raise the level of anxiety in society about a specific proposal. This has been very true of, say, the management of polychlorinated biphenyls in this province. We have made a couple of false starts that have not adequately engendered public participation. There is an almost hysterical reaction against the proposal, which is understandable, because people have no opportunity to become informed about it. Then everybody in the province becomes a lot more concerned about PCBs than he was before, so that any further initiative becomes that much more difficult to advance.

The risks of public reaction can be very project specific in terms of stopping a particular project, but they also have ramifications that are not as readily recognized that make the whole endeavour much more difficult the next time around.

Mr. Haggerty: What do you think of a proposal that is now being put forward by the Ontario Waste Management Corp., which has proposed a site in the Niagara region? One of the steps for public input is that the corporation will fund then a certain amount of money--am I correct on that, Mr. Chairman?--so they can go out and get ample research done in the area and they can put arguments up for it or against it.

Mr. Chairman: It has not gone quite that far, Mr. Haggerty.

Mr. Haggerty: It has not? I understand there is funding in that area.

Mr. Chairman: Funding only to review the technical studies that the OWMC has done.

Mr. McGuigan: The amount is \$75,000.

Interjection: It is better than nothing.

Mr. Haggerty: It is a step in the right direction. You have established something there now. The question is, how long do you think the debate should go on in this area? Should it go on for six or seven years when you have a crisis out there, for example, with the disposal of toxic wastes? The same thing applies in transmission lines. We have had a delay for a number of years on the ones from Bruce, and it is not something I have seen in any reports, such as those of the Porter commission and the MacDonald select committee, though I think we touched on it very lightly in 1975 or 1976. However, the question is, should there be a time element in this? You can have the public hearings and get it over with. The witnesses who have appeared before this committee recently have indicated that in the US there are two or three days of hearings or something similar and then it is over.

Mr. Brandt: That was in Nevada. It was across desert.

Mr. Shrybman: Armadillos are easy to get along with.

Mr. Haggerty: The case here has been that it takes two, three or four years and we still have locked-in power. How long can you go on with public hearings?

Mr. Shrybman: With regard to the first part of your question, I think the approach of Ontario Waste Management Corp. is a step in the right direction. I agree with you. With respect to what seems to be the interminable delay, particularly of siting that second transmission line from Bruce, and having heard Mr. Brandt's questions the other day, I would like to deal with that when I come to the environmental assessment process. I will comment specifically on the difficulties that have been counting there; why I think it has been such a difficult row to hoe.

Let me also note here that another cost of circumventing public hearing processes is that on occasion we approve ill-conceived and unneeded facilities. It is rather academic to wonder now what a public hearing under the Environmental Assessment Act with respect to the Darlington nuclear station might have yielded had that facility not been exempt from the act in 1977. I forget who it was, but someone said the other day that the reason the act did not apply to Darlington was because it was not in place then. However, with respect to whenever it was, that is incorrect. The act was in place and there had to be a specific exemption for Darlington so that it would not be subject to the public-hearing requirements of the act.

Therefore, we may have lost an important opportunity to examine the proposal in some detail before commitments were made. We have not had the benefit of that process and doing it 10 years later is a much more difficult endeavour, as you know.

Mr. Haggerty: The recommendations of the select committee in 1976

indicated there should be a public review of the proposed Darlington plant. The theory we covered at that time was not to say "environmental." There may have been some discussion of environmental issues, but before commencing, we said there should be public hearings. There was a demand for that at one time.

Mr. Shrybman: Unfortunately, it did not happen.

On page 17, I go on to note the need to provide the process with adequate funds. If you do not, it does not work. As you know, an environmental assessment hearing is enormously expensive. Hydro will spend millions of dollars on it and the government spends hundreds of thousands of dollars paying the salaries of the people who man the decision-making tribunals and so on. For want of \$50,000 or so to aid the cause of public participation, the whole process fails to accomplish any objective of either encouraging some confidence in the proposal in the community or allowing those critical of a proposal an opportunity to take a run at it. If you have a good project, put it up there and let people who have something to lose if you obtain an approval have a go at it. They may, in fact they often do, find flaws about which it is much better we be informed before we start spending lots of money and putting shovels in the ground than years later.

I am going to move now from this discussion of the basic principles we suggest should be adopted in evaluating the present system and devising reforms to it if they are necessary to a brief description of the present power system, or at least the major elements of it, the Ontario Energy Board, Ontario Hydro and the National Energy Board, with which I deal very briefly as well. You have had the benefit of more informed comment on these matters than I can offer, from Mr. Macaulay and Mr. Johnson from the Ministry of Energy. Let me briefly give an account of what they have described for you and begin with the Ontario Energy Board Act which, as you have heard, accords to the board certain review powers pursuant to section 37 of the act.

Those powers are to review proposed increases in hydro bulk rates, not retail rates, and to review matters with respect to rates that the Minister of Energy may from time to time refer to the board. However, the important point, and it is one that I have made earlier, is that the board exercises no decision-making authority and simply reports to the minister on its deliberations. We will recommend that the authority of the Ontario Energy Board be enhanced to allow it the same regulatory authority with respect to hydro rates that it enjoys with respect to gas rates now.

The next major element of the present system is Ontario Hydro. Its constitutional instrument, as I have indicated, is the Power Corporation Act, and Mr. Johnson has taken you through this already. Let me provide a little different emphasis to the description he has offered. This is dealt with on pages 19 and 20 of our submission. The Power Corporation Act establishes two centres of decision-making authority. The first is cabinet. I am not sure I have listed all of the powers that are given to cabinet, but I have most of them, and I set them out opposite the section numbers in the legislation at the bottom of page 19 and at the top of page 20. As I understand this configuration, cabinet is basically given three general types of approval authority.

The first is to approve all major projects, such as the building of large transmission lines and building large generation and supply facilities. The second is to deal with a whole variety of matters relating to Hydro borrowing and the issue of debentures and guaranteeing loans and so on. The third is to approve sales and, I suppose, interprovincial transfers of energy and exports.

It is important to note in this regard that with respect to these powers, the approval authority that is exercised by cabinet, no other regulatory authority exists. In our submission, the allocation of these decision-making powers to cabinet fails to match a regulatory function with an institution suited by character and resources to its task. The cabinet is an executive institution. I would argue that it is suited to broad policy determinations and not to the detailed affairs of a large electric utility.

If it is desirable to maintain the possibility of intervention by cabinet for political reasons, then an appeal to cabinet from a regulatory decision should be made. The qualified and independent judgement that must be exercised with respect to matters like project approval and borrowing and sales that are so clearly of major importance to the people of Ontario is simply not provided for in the existing arrangements. Cabinet does not have the resources, with regard to my notions of accountability, to come to any informed and independent judgement with respect to these matters. It must have the benefit of some advice and I argue that advice should be advice offered by the Ontario Energy Board.

Mr. Chairman: Why do you say that cabinet does not have informed resources? They have the resources of the Ministry of the Environment, the Ministry of Energy, and the Treasury. They have all the wisdom of all the gurus in Treasury to do the analysis on borrowing. They have as many or more resources than Ontario Hydro.

Mr. Shrybman: That is right, except there is nothing in the present system that allows, at the incipient stages of the planning process, the ministry of energy or the Ministry of the Environment, or anybody else for that matter, to become involved in the planning process. I will go on to describe the arrangements I propose and show you, or try to show you, how they are not provided in the existing arrangement. With respect to project approval, the only regulatory review that would take place would be the regulatory review offered by the environmental assessment process. That is the only thing in our system that requires an independent review by an institution, which arguably has the resources actually to understand the issues before it, that allows for public participation. I will go on to explain why that happens far too late in the process to be meaningful.

As you correctly indicated earlier, there are informal mechanisms of which I am not aware. It is the central theme of our submission that the mechanism should be formal and should ensure that those who review Hydro's activities actually have a legislative requirement to do so and that some public process be provided to allow all stake-holders, all who may be affected in consequence of a decision, an opportunity to intervene.

The second executive centre of authority that is established by the Power Corporation Act is Hydro's board of directors. It is given control and direction of the corporation's affairs pursuant to sections 4 and 5 of the act. Its authority in this regard involves determining policies for the allocation of the cost of power--rate structures and so on--the authority to approve annual operating budgets, long-range planning, major capital expenditures and contracts.

While in this regard Hydro's board of directors is accountable for the corporation as we have discussed, it is not accountable to anybody else with respect to these decision-making powers. In our view, it is utterly unacceptable that the board should act as a final arbiter with respect to issues that so clearly are matters of public policy.

The present arrangement provides no mechanism of accountability whatsoever with respect to several major decision-making functions. In the following section, we will recommend the establishment of an energy policy and planning act and the enlargement of the Ontario Energy Board's functions to provide some overview with respect to these matters. These matters are reviewed by cabinet, but they are matters with respect to which Ontario Hydro's board of directors makes decisions and it has the only decision-making authority involved.

Another area that I should touch on is the fact that Ontario Hydro itself exercises regulatory control over the affairs of local utilities. In that regard, Hydro is accountable to nobody. There is no appeal or other review offered by any utility to anyone dissatisfied with its decisions. This offends all the basic notions of accountability that I have attempted to describe. Local utilities should be accountable to the people they serve. To the degree that regulatory control is necessary, let us give it to the Ontario Energy Board.

Mrs. Grier: Are they not accountable to the local municipalities? They may be elected or appointed.

Mr. Shrybman: That is right. I have not looked at the whole matter of accountability at the local level, but there are mechanisms of accountability there. I suppose they could be improved. However, right now they are accountable to Ontario Hydro for the decisions that will determine the course of their endeavours and Ontario Hydro does not account to a municipality's electorate in any direct fashion whatsoever.

The National Energy Board approves interprovincial transport and export of energy. It does not account to the province. Other than cabinet's approval authority, there is no opportunity in the province to review the value of interprovincial or export arrangements. In our submission, there should be. That public review should take place prior to an application to the National Energy Board and we suggest that the Ontario Energy Board provide that review function.

Mr. Chairman: On all sales?

Mr. Shrybman: On sales.

Mr. Chairman: On all sales?

Mr. Shrybman: On interprovincial transfers and exports.

11 a.m.

Mr. Chairman: There may be 75 or 100 of those a day.

Mr. Shrybman: As I understand it, and I am no expert on this arrangement, a lot of those exports, transfers and recirculating arrangements and so on take place pursuant to agreements that contemplate the ebb and flow of electrical energy as it is needed in one jurisdiction. It is rather complicated, but there are contracts that determine these arrangements and how they will operate from year to year. I suppose these contractual arrangements would be reviewed by the Ontario Energy Board.

Mr. McGuigan: Let me just talk to you there. How does that work out with the Constitution? You are infringing on federal authority.

Mr. Shrybman: Obviously, the province has no authority to regulate export or interprovincial transfers of energy, say, for a gas company. That would be beyond its jurisdictional authority. With respect to a provincial crown corporation, I suggest the province can become involved in potential sales, imports or exports of energy.

That would be the way to do it. It would be a preliminary review. The Ontario Energy Board could not approve exports. Ontario Hydro would still have to go to the National Energy Board, but I suggest that the OEB has the authority to look at the matter. In fact, the OEB may decide Ontario Hydro is not pursuing vigorously enough the possibility of, say, importing power from Manitoba or Quebec, and we argue it should have the authority to require Hydro to enter into certain negotiations that might prove fruitful or valuable in the OEB's view.

Mr. Sargent: There should be a control factor. The Association of Municipal Electrical Utilities of Ontario--they are elected people--should be a very integral and powerful part of Hydro. There should be some way of doing that in writing up the new ball game.

Heretofore, the Ontario cabinet told Hydro who got contracts to build the Moog-Davis hotel down here. That was engineered by the then Premier. This is for the record. We have a track record that though cabinet had no legal tie-in, the cabinet did have a big input into what moneys Hydro spent and who got the contracts.

There should be some way of writing up the new deal. If there is something controversial, the people of Ontario through AMEU could okay a deal of such magnitude somewhere along the line.

Mr. Shrybman: There are intricacies of the system that I am not capable of addressing. I am not an expert on electrical energy.

Mr. Sargent: I know, but I knew the chairman would appreciate that snot.

Mr. Brandt: I find the comments of my colleague Mr. Sargent of some interest. I cannot let them go completely unchallenged. The issue he is referring to was well researched and very deeply investigated at the time, and there was no conflict between the Premier and cabinet and the specific project Mr. Sargent is talking about. I want to disassociate myself entirely from the remarks of the member from Owen Sound. It is one of the few times I will ever do this, but I want to do it for the record.

Mr. Sargent: He took Moog to Europe to get the money. He pretty well had to, you know.

Mr. Chairman: For the record, Mr. Brandt, on occasion Mr. Sargent has used conjecture quite clearly on this committee.

Mr. Brandt: I have found that to be the case on occasion as well, Mr. Chairman. I thought I would add some equilibrium and balance to his rather interesting remarks.

Mr. Sargent: I feel much better.

Mr. Chairman: Now that we have had a verbal coffee break, please carry on.

Mr. Shrybman: Let me move on to another part of this, that is, the reforms we propose. Before I get to them, let me note that in advocating the reforms I will soon describe we have been guided by the major areas of reform I discussed in part I, being the need for effective control and direction in terms of policy, greater regulatory control and the need for a new approach to energy policy and planning that emphasizes conservation and demand management much more than they have heretofore been emphasized.

We propose three major reforms to the functions of the Ministry of Energy. We suggest the promulgation of an energy policy and planning act. We suggest giving the Ontario Energy Board a lot of the decision-making authority that is currently exercised by Ontario Hydro and by cabinet. We also suggest giving the board a basic function of reviewing energy-related matters in a public forum. If it will do one thing now, it will provide a forum for the debate and discussion of energy-related matters from policy to facility approval. Finally, we suggest the establishment of an energy conservation utility or corporation.

Before I get into the details of the proposals, I thought it would be essential to have a schematic in the brief at some point. This is it. I am not wedded to this. I am no final authority with respect to these matters. However, I have attempted to describe at least one configuration that would be an accountable one. You may prefer another one, but this is what an accountable system looks like.

At the top, we have cabinet. In our scheme, cabinet is responsible for approving policy and forecasts. It also exercises certain appellate authority from decisions of the Ontario Energy board. One step down on the pyramid is the Ministry of Energy, which is responsible for policy development and energy forecasts, as it is now, but in a way that will be determined by legislative requirement if you accept our proposals.

Then something happens that does not happen now; that is, the reference to the Ontario Energy Board of the policy and forecasts developed by the Ministry of Energy for review by the board. You will see that the first line there under the Ontario Energy Board is the public review of policy and forecasts. It does not make a decision on policy and forecasts. It is not appropriate for a regulatory institution to make those decisions. Those decisions should be guided by political judgement and for that reason, the Ontario Energy Board simply makes a recommendation to cabinet having had the benefit of an exhaustive public review of the policy developed by the Ministry of Energy.

One of the things I like about this configuration is that if the Ministry of Energy does not do a good job of delineating provincial energy policy, it will get a whacking before the Ontario Energy Board. Everybody is going to take a shot at this--the gas people, Ontario Hydro and public interests groups. They will tear limb from limb an inadequate and ill-conceived policy. There will be a great incentive, quite apart from a legislative requirement actually to promulgate policy and do a good, comprehensive and thorough job of it. Even then, no one is perfect. Improvements will be possible. Having the benefit of others points of view should leave the Ontario Energy Board to suggest modifications and improvements on occasion which will then proceed to cabinet.

There are many who would argue, however, that the functions the Ministry of Energy would perform are simply not being performed now. They do not really generate policy. They are included after the fact, with respect to major

system planning decisions. That function is not being adequately performed now. There is no public review of those elements of the electric power planning system.

11:10 a.m.

There are other things the Ontario Energy Board will do. One is to regulate rates. Ontario Hydro's board of directors does that now, and it is accountable to no one in that regard, as I have described. The energy board will also regulate local utilities. Right now, Hydro's board of directors does that, and it is accountable to no one in that regard. The energy board will also deal with import-export, which is simply not dealt with other than by way of cabinet approval at a provincial level at this time.

Down at the bottom--and Ontario Hydro is in a different place in the general scheme of things than it is right now--Ontario Hydro is responsible for electrical system plans and system design, implementation and delivery. It does all that. It does it very well. It will now have to submit its proposals and plans to the Ontario Energy Board for public review. In that regard, the Ontario Energy Board would have decision-making power.

You might want to provide some appellate authority to cabinet. If Ontario Hydro proposes a nuclear generation station and the Ontario Energy Board turns it down, perhaps it would be appropriate to allow some right of appeal to cabinet in that regard. With respect to other matters, an appeal authority probably is inappropriate. In any event, there will now be a review by the Ontario Energy Board of all system planning and facility proposals that are forthcoming from Hydro.

On the other side is this Ontario energy conservation corporation that we propose, which will do for conservation, efficiency and demand what Ontario Hydro does now for supply. It will be responsible for conservation system planning, design and implementation. It will also be responsible for co-ordination and intergovernmental planning and it will account for its endeavours to the Ontario Energy Board in a public forum in precisely the same way that Ontario Hydro will. I have also noted other sectors whose relationship with the OEB I have not really considered.

Mr. Chairman: I am interested in knowing why you proposed that crown corporation or that function separate and apart from the utility.

Mr. Shrybman: Which?

Mr. Chairman: The Ontario energy conservation corporation.

Mr. Shrybman: Separate from the utility? I go on and deal with that at some length, actually, when I come to talk about the OEC, and I list a number of reasons that persuaded us it would be inappropriate to leave that function with Ontario Hydro. There are six or seven cogent reasons for removing it from Hydro.

Mr. Chairman: I do not disagree with you.

Mr. Shrybman: Aha! I will come to it.

Mr. Moore: On the matter of rate regulation, Ontario Hydro would still put forward a rate proposal to the OEB, would it not?

Mr. Shrybman: Yes.

Mr. Moore: And it would be approved, disapproved or changed by the OEB?

Mr. Shrybman: That is right. The OEB now makes a recommendation. In this scheme of things it would make a decision.

I will come back to that schematic. Let me deal now with the elements of the scheme. The first one is the Ministry of Energy, which would now have the obligation of preparing a provincial energy plan and forecast. On page 24 we recommend the enactment of an energy policy and planning act, which would delineate the procedures appropriate to the development of energy plans and forecasts for the province and for various energy sectors.

In broad outline, the general requirements of that legislation would be that the ministry develop a provincial energy plan that would include a comprehensive assessment of environmental, social and economic impacts and would be guided by the methodologies set out in the Environmental Assessment Act. I will deal with that in the next part of my brief, but it would be the planning approach that would be adopted by the Ministry of Energy to account for all of the costs of one plan as opposed to another.

It would also develop an official energy demand forecast. It would engage in broad consultation with all the interested parties and come up with a demand forecast. It does that now. Perhaps its consultation would be broader than it currently is.

The act would also offer strong policy support actually in legislative form for conservation and demand options.

The last element is, as I have indicated, that all of this would go to the Ontario Energy Board, and the forecast that would result, it is appropriate to note, would be the official forecast for energy planning in Ontario. In other words, Ontario Hydro could not come forward and suggest the need for another nuclear generation station on the basis of an electrical energy demand forecast that was different from the one adopted by the Ontario Energy Board, and that is currently the case. The Ministry of Energy develops one forecast, Ontario Hydro develops another, and at times there is a significant difference between the two. We regard it as unacceptable that Ontario Hydro proceeds to plan major facilities with important implications for everyone in this province on the basis of forecasts that are fundamentally at odds with the forecasts developed by the ministry.

This would allow Hydro to offer its criticism of the forecast developed by the Ministry of Energy, one with respect to which it has already been consulted; it would allow the Ontario energy conservation corporation the same opportunity, and I would be able to be there as well, putting in my two cents' worth. But when the forecast was developed by the board and approved by cabinet, that would be that.

The next major element of the new system that we have devised is the Ontario Energy Board. There was a recommendation of the royal commission that the OEB be much expanded. I do not think we are suggesting anything here that was not recommended by Dr. Porter. He suggested that the OEB be given the authority to review energy policy in general. We have adopted that recommendation and tried to put it in place by suggesting an amendment to the Ontario Energy Board Act that would allow it that opportunity.

Also, on page 25--and because of time I will not go through it--I recount for you the recommendations of the Economic Council of Canada with respect to the appropriate role of institutions such as the OEB. Its recommendations are essentially in agreement with the recommendations of the royal commission.

Mr. Sargent: Why are the Atomic Energy Control Board and Atomic Energy of Canada Ltd. not involved in this?

Mr. Shrybman: Unfortunately, AECB and AECL are regulated federally and not by Ontario for constitutional reasons. I wish they were.

Mr. Sargent: They have wide powers in anything that happens in Ontario, do they not?

Mr. Shrybman: They are very busy in Ontario but we have no provincial control over their activities, even with respect to pollution. The ministry has attempted to enforce provincial pollution controls against Eldorado Nuclear and has been told by the courts that it simply has no jurisdiction to do so. Those two bodies are not mentioned here because we do not have the constitutional authority to concern ourselves with their affairs.

I set out in page 26 the recommendations for amendments to the Ontario Energy Board Act. These are that the Ontario Energy Board Act be amended to:

"(i) Provide the board, aided by the participation of members of the Environmental Assessment Board, with the responsibility of reviewing and making recommendations to cabinet with respect to provincial energy plans and forecasts to be developed by the Ministry of Energy.

"(ii) Expand the authority of the board to include decision-making authority with respect to matters concerning Hydro affairs currently accorded by the Power Corporation Act to cabinet.

"(iii) Provide the board with rate-setting authority, which should include retail as well as wholesale rates."

Right now, the Ontario Energy Board, even in carrying out its review functions, has no opportunity to consider retail rates. It should. Most of the people in this province buy power at retail rather than at wholesale or bulk level. It is interesting to inquire as to what standing they might have to raise their concerns before the OEB, given the present configuration.

The next power that the OEB would have is, in co-operation with members of the Ontario Environmental Assessment Board, actually to approve facilities. It would regulate local and regional utilities and it would provide some preliminary review of any proposal to transfer energy interprovincially or to export it.

Mr. Chairman: Once more, are you suggesting something that parallels the Consolidated Hearings Act?

11:20 a.m.

Mr. Shrybman: Precisely. I suggest in part III of the brief, with respect to facility approval, that the Ontario Energy Board Act be added to the list of public hearings consolidated, pursuant to the provisions of the

Consolidated Hearings Act, to further streamline the decision-making process.

On page 27 of our brief, I make a point that I would like to read for emphasis. In advocating an expanded role for the Ontario Energy Board, we do so in order to make important regulatory functions more responsive to the needs and interests of all Ontarians. It is absolutely essential that all stakeholders be given an equal opportunity to participate in this regulatory process. It would be folly to replace one monolithic and unresponsive institution with another. In this regard, we believe the first two reforms to the Ontario Energy Board Act should respectively address the qualifications and the manner of appointing board members and the accessibility of the board's processes to those who have traditionally been excluded from them.

At a minimum, the first will require public review and potential veto of board nominees. The second will provide intervener funding and cost awarding powers, so people who do not currently have access to the process might now effectively participate. We engender this in recommendations which are set out at the bottom of page 27 and the top of page 28, and I will read them. The first is that the act establish a public appointments procedure that would provide for the publication of all nominees to the boards for review and ratification by a standing committee on appointments. The second is that the board be provided with express authority to provide funding and assess costs preceding, during and at the conclusion of any matter, with the purpose of facilitating informed and meaningful public participation.

Recent decisions of the Divisional Court in Ontario make it very clear that unless that authority is specifically provided in the act, the court will not allow the board to exercise the authority to assess costs, for example, against Ontario Hydro before a hearing gets under way.

The third area of reform I would like to propose to you is something that was not suggested by either the MacDonald select committee or the Royal Commission on Electric Power Planning, but does, I believe, carry into practice the recommendations they offered. I have reproduced the salient recommendations of those earlier reviews on page 28 that call for this new emphasis on conservation and load management as opposed to supply expansion.

I have been tempted and succumbed to my temptation to stray from the structure of all of this to a little bit of the substance. This has to do with the good sense of efficiency and conservation and you will find a diagram following page 29 of the brief. There is a picture of some houses on the diagram that I think makes it more appealing. It was developed by Mr. Charles Ficner, who works for the federal Department of Energy, Mines and Resources. He is a director of residential conservation in the renewables and conservation energy branch and he describes a good sense of conservation in the residential sector. This is what an energy-efficient house purchase looks like to a consumer. The consumer has a choice of two homes. These are 1981 figures, but I spoke to Mr. Ficner and he says they are valid today and even though the figures might be a little higher, the proportions and ratios remain the same.

The first is a conventional home. It cost \$80,000, and it costs \$800 a year to heat, so it costs the home owner \$800 year. A super energy-efficient home costs \$3,000 more. If a consumer goes out and borrows that differential at 15 per cent, and the interest rate would of course be lower today, that costs the home owner \$450 per year. The heating bill is one eighth that of a conventional home. At the end of the day the consumer is paying \$550 a year for the same energy service--basically, a warm house--that he is paying \$800 for if he buys a conventional home.

Conservation makes good sense from the consumer's point of view. Let us look at it from the point of view of the overall cost that we as a society have to pay. Here is a conventional home again. It costs \$80,000. If I want to heat it electrically, I have to put in 25 kilowatts of electric baseboard heaters.

For every kilowatt of electric baseboard heater I put in, Ontario Hydro does not build an additional kilowatt of capacity. There is a diversification factor, which I understand is the result of simply appreciating the fact that my heater will not be on all the time. But Hydro does build more than this--and I believe this figure is conservative--six kilowatts of additional capacity. Those kilowatts costs \$2,000 each--for example, Darlington--so we end up paying collectively \$12,000 to provide the capacity that the conventional home will require in order to provide the energy service of a warm house to the consumer.

The super energy-efficient home costs \$3,000 more. Its heating plant is much smaller; it is only four kilowatts. Ontario Hydro has to build only one kilowatt of additional capacity. That costs \$2,000. If we add Hydro's cost to the cost the consumer bears, the overall total is \$5,000.

I am not an expert in these matters. It is just that this diagram, more than any other I have seen in the course of my travels and experience before various regulatory tribunals, really brought home the point that it is a phenomenal waste of resources not to make the commonsense decision here. I am not sure precisely why this does not happen in every detail, but one of the major problems, I believe, is the absence of an effective institution to bring those super-energy-efficient homes, the R-2000 homes, into being somehow. Right now most of the homes we build in Canada are not R-2000 homes. We are still building conventional homes.

Mr. McGuigan: Is it accurate that the \$3,000 is the only difference in cost between the two?

Mr. Shrybman: I have spoken to Mr. Ficner. He has a staff now. Seven R-2000 homes have been built in Canada during the last two years, and he and his staff have gone out and monitored those homes. He tells me the \$3,000 cost is more like \$3,500 over \$80,000.

He also tells me the costs are coming down because of a number of factors. First, a large portion of that cost is air circulation equipment. There is not a great demand for it; it is high priced. The price is coming down.

Second, a national building code has been promulgated that requires all new homes to put in air circulation equipment whether they are super energy efficient or not. When this is adopted provincially, the discrepancy between a super-energy-efficient home and a conventional one will be less because both will have this air transfer equipment.

The third factor that he suggests will bring the cost down--the cost differential is not that great to begin with--is that these are the first 700 R-2000 homes that have been built by an industry unfamiliar with the technology. We presume that as they become more familiar and comfortable with it, they will become more efficient at doing it.

Mr. Haggerty: I know a chap who brought to my attention that he has installed a heat exchanger in his gas furnace with a small fan so there is slow-moving air flow going through. It is just like a boiler with tubes going through it that capture the hot air before it goes up into the chimney. He has installed it on his home heating furnace and he says it has reduced his gas bill by 40 per cent.

Mr. McGuigan: I think it is illegal.

11:30 a.m.

Mr. Haggerty: That is the point I am coming to. It worked very well until Consumers' Gas came in and asked, "Why have your monthly gas rates been so low?" He showed it to them and was told to take it out of there, but now he is trying to get a patent for it. It is just like the old wooden stoves that used to have the two elbows that came out and a heated air chamber above that in which one captured the heat before it went up the stack. It is the same thing. They told him to take it out. There is probably technology out there that can be used to conserve gas if they can get this thing to put it on the market. It is very simple. I have a diagram of it.

Now the new gas furnaces have a two-inch plastic flue that goes into an eight-inch chimney. That is on the market and has been approved. It is just a way of capturing all that forced heated air going up the stack. He traps it and none of it goes through.

Mr. Shrybman: I hope this will answer your question, Mr. Chairman. This is why an Ontario energy conservation corporation and not Ontario Hydro is suited to the task of energy conservation as we understand the problem. I have highlighted the points here. Let me briefly go through them. Ontario Hydro is highly centralized and qualified by corporate structure and expertise to plan and implement the capital-intensive mega energy projects. The overwhelming majority of conservation and energy-efficiency measures are small, decentralized and technologically simple. Even in the industrial sector, the implementation of efficiency measures is several orders of magnitude removed from even a modest supply option.

The second reason is that it cannot afford conservation. You have heard from many that Ontario Hydro's short-term objectives are at odds with conservation and energy efficiency. Several have concluded that Ontario Hydro simply cannot afford conservation at this point. For us, the proof of this pudding is Ontario Hydro's aggressive "go electric" advertising campaign, encouraging increased use of electricity even for residential space heating which we understand to be its most inefficient application.

The next reason is that we believe Ontario Hydro has a very reluctant and sceptical attitude about conservation that it has demonstrated often and in a variety of forms. You have heard the debate between, for example, Amory Lovins and representatives of Ontario Hydro. With respect to the potential of conservation, we suppose that reasonable minds may diverge. However, it is important in this regard to recognize that nobody has been more reluctant to recognize the potential benefits of conservation than has Ontario Hydro. Repeatedly in these discussions, Ontario Hydro's analysis frames one extreme. There is no one that argues that conservation has less potential than does Ontario Hydro.

Our submission is simply that conservation requires more enthusiasm than Ontario Hydro has demonstrated for it. To illustrate that point, let me return to my diagram with the houses. I was interested in getting an update from Ontario Hydro on how much it costs to install a kilowatt of capacity and what its diversified demand factor is. It very graciously reworked my whole chart and gave me its interpretation of the figures on it and told me, at the same time, that these were the figures it used to determine strategic conservation in Ontario.

This is the same chart. The figures that I showed you before are the figures that are not in brackets. The figures in brackets are Ontario Hydro's revision. This is its interpretation of what would be a more accurate picture. On every occasion, the advantage of conservation is whittled away, and the benefits of nonconservation are enhanced in a sense. Here is the first one. It costs \$800 to heat the conventional home. That was the 1981 figure. Ontario Hydro says that is now \$790. It costs less in 1986 than in 1981. I am not doing this to challenge the veracity of Hydro's interpretation. I am sure it can justify these figures. It is just to show you the extremes.

Mr. Snell: Who is Charles Ficner?

Mr. Shrybman: I will repeat that. Charles Ficner is the director of residential conservation in the conservation renewable energies branch of the Department of Energy, Mines and Resources. The paper I have taken this from is one he presented to an international conference on conservation in Berlin. I have called Mr. Ficner as a witness before the joint hearing board. He was qualified as an expert; Ontario Hydro offered no challenge to his credentials as the foremost expert in Canada on conservation in the residential sector.

In conversation this week, he advised me their auditing of the 700 homes that have been built in Canada revealed that their performance is five per cent better than this chart predicts. The empirical evidence Mr. Ficner has gathered suggests that his chart is conservative, that these homes do better than he predicted.

Ontario Hydro suggests the super energy-efficient home would cost \$3,500 more. According to Mr. Ficner, that is probably accurate. However, the costs from month to month are less in any event because the interest charges are lower. However, here is where there is an enormous discrepancy. Mr. Ficner predicted his R-2000 home would cost \$100 per year to heat. He says the performance of those homes is better than predicted, but nevertheless Ontario Hydro predicts that those homes will cost \$150 per year to heat, which is about 60 per cent of what a conventional home would require. If you look at the total, lo and behold, it turns out that an energy conservation R-2000 home is more expensive and a bad investment.

When you look at the cost to the utility, the top line of figures remain essentially unchanged except that there is a recognition that the diversification factor is not as small as the one Mr. Ficner offered. He was trying to be conservative in his figures. He was not making a best case; he was making a conservative one.

Mr. Cureatz: Are you saying that Hydro says it costs more money to provide for an energy-efficient home?

Mr. Shrybman: That is right; \$2,000 more. For a conventional home, Hydro says it would install seven as opposed to six kilowatts, so it costs \$14,000 rather than \$12,000. The difference is that when you come to the super energy-efficient home, Mr. Ficner says it is four kilowatts of installed capacity in the home. Hydro gets off with a question mark there. Mr. Ficner says four, and the house has actually performed better than anticipated. Four kilowatts in the house are enough. If you apply the same factor, Hydro should only be installing one. They say four; I do not know why. However, that comes to \$8,000. At the end of the day, the R-2000 home still comes out better, but the discrepancy is much less.

I do not know who is right. However, I estimate it would be difficult to get a more pessimistic view of this than Ontario Hydro has offered, and this is probably one explanation of why this estimation of strategic conservation is so dramatically at odds with those offered by Dr. Robinson and Mr. Torrie, for example.

The last reason I suggested it would be inappropriate to leave the mandate to pursue conservation measures and strategies with Ontario Hydro is that it has had an opportunity since 1981, when the Power Corporation Act was amended, and it simply has not done a good job. The proof of that pudding might be the residential energy advisory program, which has been described as a disappointment by many that have appeared before you.

Five years after it was given a mandate to develop an end-use forecasting model, to listen to Dr. Robinson, it appears it is not even using it for the right purpose and still it does not have sufficient data. Hydro has had a chance; it has not done it.

Therefore, we recommend an Ontario energy conservation corporation be established, with a broad mandate to plan and implement energy conservation and efficiency measures and programs. That would offer certain benefits the present system does not.

11:40 a.m.

In a way, these are other reasons Ontario Hydro is not appropriate to the task. The first is that conservation and efficiency programs are disaggregated and well suited to institutions that are already in direct contact with consumers. For the little small-scale projects in people's homes having to do with furnaces, windows and so on, arguably the best people to carry forward those programs are people who have a relationship with those retail consumers, and the people who have that relationship are local utilities. Most people in this province buy power from local utilities. The organizational structure necessary to carry forward these thousands of small energy-efficiency programs and individual projects, the resource and structure appropriate to that task, is the resource and structure of the disaggregated local utilities rather than centralized Ontario Hydro.

Mr. Chairman: Do you really mean regulate the local utilities?

Mr. Shrybman: No, that is wrong. I do not know why it says "regulate." It must be a typo. What I intend is what I am offering by way of a comment. I suppose the local utility's activities in this regard should be regulated by the Ontario Energy Board.

Mr. Chairman: Yes.

Mr. Shrybman: As well, local utilities could add a particular sensitivity to local conditions. In the Ottawa area, there have been a couple of gas explosions and that has made people shy of converting. Knowing these things is helpful in carrying forward those proposals. That is a sensitivity a local utility might have that a large corporation with its head office in Toronto might not have.

This is another advantage offered by this new utility, and it is absolutely essential. Comments were offered to you yesterday while I was here by the Ontario Natural Gas Association. My Ontario energy conservation corporation could deal with conservation in all energy sectors. It would not be restricted to electric energy. That is unjustifiable as far as we are concerned. It could look at gas, electricity, oil and a variety of things that Ontario Hydro cannot look at. I am sure the gas companies would vigorously resist Hydro's intervention in conservation of gas because they would be afraid that Hydro's solution always would be to switch to electric heat.

A third reason for going to an independent conservation utility is that experience elsewhere has shown that when you establish institutions that can single-mindedly pursue conservation objectives, they work well.

Finally, effective conservation strategies cross existing jurisdictional boundaries. For example, if you look at the recommendations of the MacDonald select committee and of the Royal Commission on Electric Power Planning, they suggest a need for building standards. How do we do that? Do we equip every ministry in this province with its own conservation and renewable energy branch. Does the Ministry of Transportation and Communications have one? Does everyone have one to be informed about conservation and efficiency measures, or do we provide one organism that can inform all the ministries and provide co-ordinating functions so we can get appliance standards from Consumer and Commercial Relations, building standards from Housing and transportation standards from Transportation and Communications.

If I can go back to the schematic for a moment, we think there will be continuing tension. There has been for quite some time, and on that basis, it is reasonable to anticipate there still will be tension between expanding supply, and conservation and demand strategies. Which way are we going to go? We think there is great benefit in allowing a protagonist of supply, which Ontario Hydro is very effectively, to engage in a vigorous and public debate about the virtue of its proposal with one that has a different point of view, equal resources and can also do justice to its cause. Let them fight it out at the OEB when they put their plans forward. We will all have the benefit of a much more informed and expert discussion of the issues before us.

Mrs. Grier: Will you comment on the suggestion we have heard from a number of people about the need to integrate supply and demand planning, that if you maintain the adversarial approach--

Mr. Chairman: The planning is going to be done at the ministry.

Mrs. Grier: The chairman is saying the planning is going to be done at the ministry, but I still see Hydro as submitting its own forecasts and its own recommendations. Are you not merely emphasizing its role as a supplier and making it even less likely that it is going to develop the capability to do end-use planning and proper demand studies?

Mr. Shrybman: It is not going to have that job any longer. But where it is integrated, I believe, is at the policy development stage. There is a

provincial energy plan prepared by the ministry that goes to the OED for review. If the conservation corporation and Ontario Hydro do not like it, they fight it out, and that plan determines the system planning context. In other words, Hydro and the energy corporation have to fit themselves within that system planning context, which is an integrative and iterative process.

Mrs. Grier: But the implementation will rest with Hydro.

Mr. Shrybman: Hydro will take the plan and say, "Here is what we have to do in terms of supply." The energy conservation corporation will say the same thing, "Here is what we have to do in terms of demand and conservation." They will develop their plans, strategies and programs for facilities, they will put them forward to the OEB and they will be reviewed there. The first test will be whether they fit with the provincial energy plan. The second will be, "Given that, should we be going one way rather than another?"

Mrs. Grier: So the kinds of programs that other utilities in the United States have done, such as incentives to buy efficient appliances and so on, would no longer be within the purview of Hydro. That would be implemented and done by the conservation corporation..

Mr. Shrybman: With the approval of the Ontario Energy Board. The OEB becomes the integrative mechanism.

I know you have heard from the Northwest Power Planning Council. I have used its act as a guide in developing the act I set out here, which is my proposal for an Ontario energy conservation corporation act, as I have used the Warren Alquist act from California, simply as a guide for what the elements of this system should be.

You might come up with a different configuration. That is quite possible. But this is an accountability arrangement. That is why I think the notions of accountability are so important. Otherwise, you have a thousand possibilities of which way to go. How can you test which is the best way to go? I would suggest that you take the notions of accountability, see which one is the most accountable and go that way.

This is one accountability configuration. I cannot imagine that it is the only one.

Mr. Gordon: How many years would it take for this Ontario energy conservation corporation that you are talking about to pay for itself?

Mr. Shrybman: I have not been able to deal with those details.

I have three comments to make in that regard. First, it should have access to capital on the same terms that Ontario Hydro does. Second, it should be able to use the billing systems of gas companies and of Ontario Hydro to recoup any loans it might extend to a consumer. I know that happens with the gas companies now, because when I had my attic insulated, the gas company actually lent me money to insulate it, and I paid it back on my gas bill, so it is something like that. Third, some things the Ontario energy conservation corporation would be doing, such as developing a building code, are things that are properly the function of government that we either are paying for now or should be paying for, so that there would be some public funding of those types of functions of the Ontario energy conservation corporation.

I have not been able to deal with this; I am not enough of an expert in the area. But I suppose it is absolutely essential in terms of its program that it generate revenue, in a sense. With respect to those conservation houses, I suppose it might enter into an arrangement--I understand that this happens in the United States--with the consumer. It will say to the consumer: "You move into a R-2000 home. We will ensure that your monthly costs are at or below the cost you would otherwise be paying for energy." It will recoup by way of that equal monthly charge the money that is loaned, and perhaps even a service charge on top of that, so that its activities in that regard would be entirely self-financing.

Clearly, in some respects it can be self-financing. I am not certain exactly how large that opportunity is and how much public funding would be required. That would have to be carefully looked at.

However, the opportunities seem to be enormous. We are missing them now. We are wasting a lot of money and important environmental resources. This is a way to make the system and our environment more efficient.

11:50 a.m.

I will go through the next part very briefly. This can be found in the brief at page 34 and following. This is the new act, as I project it. I will offer a few highlights. You will note that my definitions include a definition of "cost." This includes economic, environmental and social costs. The act should say that.

Section 3 deals with the establishment of the corporation. The act should say this as well. I am firmly committed to this part of it. It says, "Nominees to the corporation shall respectively have backgrounds and experience in the following fields: engineering, environmental protection, economics, natural resources management, administrative law and one member from the public at large." It is perfectly appropriate for the legislation to actually deal with the qualifications of people who will be nominated to the corporation. I have lifted this from one of the American acts.

It deals with the matter of bias. I have taken that from a US prototype as well. There shall be a public vetting by a standing committee on appointments of nominees which might veto a nominee who is not properly qualified for the task or one who has a bias.

Finally, I give the corporation the power to retain counsel to intervene in proceedings that deal with energy-related matters; so there is my Ontario energy conservation corporation appearing before the Ontario Energy Board and making its case with respect to Hydro projects as well as its own.

Part IV deals with the functions of the corporation preparing an end-use database--something that has not adequately been carried out by Ontario Hydro--and preparing a conservation plan for the province, setting out the goals. It is not a wishy-washy affair. The plan will actually say what we are going to accomplish, what we are going to achieve, here are the goals; they will be measurable. We will be able to test the performance of the thing and if it does not work, we will get rid of it.

The next part deals with standards and practices. My corporation cannot promulgate housing standards but it can develop them and refer them to the responsible ministries.

On page 37, I deal with energy surveys and audits so that we can identify where the improvements and the potential exist. The next part deals with loans, subsidies and financial incentives. I note the recommendations of the select committee and of the Royal Commission on Electric Power Planning. Under part VI B, you will note that my provisions of the act trace the recommendations, more or less word for word, of the people who have reviewed this matter. So, when I talk about research and development, I again offer you the recommendations, and throughout the act you will find references to the recommendations that I am simply attempting to express in legislative form for the first time.

On page 38, I offer comments in response to the question about how the activities of the corporation will be financed.

I will now turn to part III of the brief, which deals with energy and the environment. I do not believe anyone has described the Environmental Assessment Act and its process to you, so let me do that briefly.

We believe the planning methodology set out by the Environmental Assessment Act to be vital in providing a thorough and comprehensive assessment of all of the costs and benefits associated with system planning options.

Here are the basic elements of this legislative regime. To begin with, it offers a holistic definition of the environment, which includes the social, economic and cultural conditions that influence the life of man or a community.

The expansive definition is particularly useful with respect to electric system planning because of the conflicting nature of the claims on the environment and the rationale offered in support of them. The act provides an important tool that can "integrate the development of energy policies with social and environmental policies associated with energy." We know there are environmental and social dimensions of this, and the act provides a good way to iterate those aspects of the equation.

To illustrate, the act provides a methodology for answering the following questions: Which system planning option will create more employment? Which will minimize the release of contaminants to the environment? Which is more amenable to democratic control and accountable institutions? Which will most reliably meet the energy service needs of Ontario citizens? Which will create the greatest demand on the provincial economy?

Those are all questions which come squarely within the ambit of the definition of the environment set out by the Environmental Assessment Act. It also provides the proponent with a very clear direction to avoid externalizing costs. Many of the problems we have today are as a result of the fact that many system costs are not included in Ontario Hydro's equation. If you look at the houses, you will see that the balance sheet for society on one side of the ledger is much different than the utility's balance sheet on the other. What makes sense for Ontario Hydro may not make sense for us all collectively.

The next major element of the Environmental Assessment Act and the process is that it requires a proponent to assess environmental impacts. This is the main operative provision of the act. You can boil down the act to subsection 5(3). It is on page 41 of my brief. It requires that the proponent set out the rationale for its undertaking, that it look at alternatives to its undertaking and at alternative ways of carrying out the undertaking, and that it then compare them all.

While the term "need" is not used in the act, this is often described as the "need provision" by people who are familiar with the process. The underlying principle of the act is that it is not sufficient for projects simply to meet the proponent's stated purpose. By requiring a comparative assessment of alternatives, a proponent must weigh the advantages of meeting its purpose, with meeting its purpose in another fashion or with not needing its purpose at all. The need for the project is established when the benefits outweigh the costs and when the balance favours the proponent's preferred alternative. In this manner, the act requires that an account of environmental impacts be taken at the same time and in precisely the same manner that technical and financial considerations have traditionally been assessed.

You will know about business much better than I. I have no experience with it and many of you do. A corporation will plan strategically but, up until recently, the only considerations that it would take into account were technical and financial, not environmental, social and economic considerations that were beyond the ambit of its specific insular concerns.

Mr. Snell: Do they not argue about doing that now in the consultation process?

Mr. Shrybman: I argue that the act applies to plans as well as it does to projects. The act should apply to the demand and supply option study and it should apply to the development by the Ministry of Energy of a provincial energy plan for the province. Ontario Hydro has not carried out anything such as an environmental assessment with respect to demand and supply options. In my opinion, it is not meeting the requirements of the act now. That is another issue, or perhaps this committee's issue. It is not satisfying the requirements of the act at all.

The third major element of the environmental assessment process is the review and public hearings requirements. Unfortunately, the act has not been applied to a major supply expansion project of Ontario Hydro other than transmission, because Darlington was exempt. Few projects proceed to hearings before the Environmental Assessment Board. Most do not require hearings, but some do. With respect to Ontario Hydro, the notorious ones have been the transmission system expansion projects in eastern and southwestern Ontario.

I represented the hydro consumers' association, which was a group of rural residents in Lanark county who intervened in the plan-stage hearings before the joint hearing board with respect to the eastern transmission system expansion project. That was my entrée to energy system planning and implementation matters. I am familiar--though I was not actively involved--with the southwestern hearings. Let me deal with the some of the questions Mr. Brandt offered the other day and with some of the comments offered by the Minister of Energy (Mr. Kerrio). The minister repeatedly stated that getting those transmission lines out of Bruce has been a 20-year endeavour. With respect to him, I disagree. I do not believe that is accurate.

12 noon

Twenty years ago, in 1966, Hydro must have been in the process of finally approving the construction of the Bruce nuclear generating station. Unfortunately, it did not turn its mind at that time to the problem of transmission lines from the facility. In fact, that has been one of the major criticisms of its planning process. It established the station in isolation from establishing the transmission facilities that would serve it.

It was not until the early 1970s that Hydro went about the process of trying to acquire the approval to build one line from Bruce to Milton. That was before the Environmental Assessment Act and before any public hearing requirement other than the public hearing requirements of the Expropriations Act. Hydro encountered an enormous problem when it tried to build that line from Bruce to Milton, but it had nothing to do with the present regulatory process because the present process did not exist then. In fact, it was brought into being in large measure to address among other things the problems Hydro had in getting that first line approved.

What happened there, in my understanding, was that there was no public forum for people in the community who would be affected by this line and who would have their land expropriated in consequence of its construction to actually challenge the nature of Hydro's proposal. People in the community said: "Wait a minute. Why are you building this line from Bruce to Milton? Why do you not build it from Bruce to Essa? Why is that not a viable alternative?" Because they had no forum, there was no Environmental Assessment Act, there was no public hearing process and they could not advance that complaint or criticism in any form, they did whatever they could to stop the project.

What they did was to continually take Ontario Hydro to court every time it applied for planning approval or expropriation approval. They tried to turn those forums into the discussion they wanted to have with Hydro over the whole proposal. The community rose up in arms and used the legal process to frustrate Ontario Hydro's project. It took Hydro about 10 years from announcing its plans to build this thing to actually getting it built. It was not the fault of the existing process; it was the fault of the absence of a process that allowed for meaningful involvement by the community that would be affected in the systems planning decisions that would one day lead to the expropriation of their property.

The second line out of Bruce went to a public hearing before the Environmental Assessment Board and the joint hearing board, not 20 years ago but in January 1982, four years ago. As many of you may know, there have been problems on the second occasion as well. The problems are basically the same as those encountered the first time. The joint hearing board, it was later determined by the Divisional Court in Ontario, made a mistake in not providing adequate notice to people who were not on Hydro's preferred route.

There was a two-stage hearing process: first, the board picked a general area within which the line could travel and, second, it chose a specific route. When the board made its choice at the end of the planning-stage hearings and announced its decision that the general area was going to be from Bruce to Essa, which was rather ironic 10 years later, people along that route suddenly became aware of the project and said: "Wait a minute. We did not know about this hearing."

In a sense they had the same complaint as the people who were concerned about the first Bruce line. In other words, they had not had an opportunity to influence the decision, this time not because there was not a public hearing process but because they were not given notice of that process. If you review the decision of the Divisional Court, as I have had occasion to do, you will find that court very squarely assesses responsibility for that fairly egregious error with the board.

They said the board did not do a good job in apprising people of the fact that this hearing was proceeding. The board members did not adequately address their minds to the matter of notice. They did not so much as put a

notice in the paper with a map so people could see what the thing was going to be about. When the matter was brought to their attention after the hearing, they were reluctant to reopen the matter and let people who had not been involved into the process.

The court made it very clear that the board was at fault. If we have a public appointments procedure, we will have people on decision-making tribunals who are more sensitive to the value of public participation than some of the people who are currently on our boards.

Mr. McGuigan: The member for Grey pointed that out at the beginning of the process. Bob McKessock pointed that out.

Mrs. Grier: There were also some problems with the wording of the joint consolidated hearings board in that the specifics of notice are not spelled out in the legislation, so the legislation itself is inadequate.

Mr. Shrybman: That is right. Suffice it to say that for the route stage hearings, notice was adequate. In eastern Ontario there was a map and there were not the same problems. The hearing process is going ahead more smoothly. It is unfortunate that the Divisional Court said, "Sorry, you have to start over again." That is what has made the process so time consuming and costly.

I tell my clients that if you are given an effective and meaningful opportunity to influence this decision before a decision-making tribunal that is qualified, competent, independent and unbiased, then you have to accept the conclusion of that tribunal. Those are the conditions under which I act for people. To this point, they have not had that opportunity. They have not been given the resources to make their participation a meaningful exercise. They have not been involved early enough in the planning process. The problem with the transmission projects is that people want to talk about the need for the transmission lines, but the need for the transmission lines in southwestern Ontario is the Bruce generating station.

They had no opportunity to discuss that issue in a public forum, so there is still a tension that presides. That is the opportunity of this committee. If we do not do this right now in terms of the demand and supply option study and the decisions we are making today, five years from now, when Ontario Hydro announces another nuclear generation station, everybody is going to say: "Well, hey, hold on a minute. How did the whole thing get this far? We have not had an opportunity to participate effectively in this discussion to this point. Decisions have already been made. There is five years' worth of planning behind this."

The public opportunity to participate at that point simply will not satisfy what I consider to be a legitimate objective, and that is to participate in the incipient stages and in every stage of the planning process. Unless we give people that opportunity, I think we are going to encounter continual obstruction and opposition. If we do it--

Mr. Brandt: Can you comment on one aspect of the dilemma as you have outlined it? I would suppose that in this exercise there would have to be, on the part of those who want to intervene, some form of intervener funding.

Mr. Shrybman: Yes.

Mr. Brandt: I would get your concurrence on that, I believe, in

order for the groups to put their case forward effectively.

Mr. Shrydman: It is absolutely essential.

Mr. Brandt: That being the case, would the money for the interveners in the particular situation of the Bruce-to-Essa line come from Hydro, from the government, from where? What would your suggested formula be with respect to the kinds of dollars that would be associated with either that project or another project? I raise that question because even those who philosophically and practically favour the concept of intervenor funding, as I have stated publicly on a number of occasions, have some difficulty with open-endedness in terms of intervenor funding. Where would you draw the line as it relates to that kind of intervention, the kinds of moneys that would be applied to the consideration at hand and also where the dollars would come from?

Mr. Shrydman: Let me deal with where the dollars would come from first. The dollars should come from the proponent of the project. The cost of approvals is, in large measure, a cost of the project. For Ontario Hydro that involves preparing an environmental assessment and retaining counsel to participate in an environmental assessment hearing and it should involve the costs of facilitating public participation in the project, so the cost should be levied against the proponent. What has happened on occasion--

12:10 p.m.

Mr. Brandt: Can I stop you there for a moment? Are you saying that because Ontario Hydro is a public utility--and do you differentiate between intervenor funding being applied as a cost to the project in the same circumstance where it would be a private company making a similar submission?

Mr. Shrydman: Yes, I do. I would make no distinction between the two. It should be a cost of obtaining an approval. It will be a small proportion of that cost too, I think it is also important to note. When I come to the amount of money involved, it is clear that we are talking about a very small proportion of the costs that are otherwise involved.

Mr. Brandt: That is perhaps a matter of whose ox is being gored. The small proportion of the money that you talk about I have seen in some projects take on a very significant percentage of the total cost of the project.

Do you not see some problem with respect to the conflict between a proponent of a project having to put forward his strongest case, in the private arm particularly, and also being asked to supply all of the funds to establish the opposition to that very project? You do not see any conflict in that whatever.

Mr. Shrydman: No, in the same fashion that a court of law might assess costs against the parties to a proceeding.

Mr. Brandt: That is different. That is after the fact.

Mr. Shrydman: Yes. A number of options are available here. One of them that I was about to mention, and it has occurred on occasion, is the provision by the government--for example, the Ministry of the Environment--of funding to an intervenor. This happened recently in the hearing that proceeded before the Environmental Assessment Board concerning a Tricil expansion in your riding.

Mr. Brandt: That was one of the ones I was referring to.

Mr. Shrybman: There was a substantial cost awarded--at the end of the day, I note--against Tricil. That money went to pay the ministry back for the funds it had advanced to the interveners. Some of it went to remunerate legal aid for the funds it had provided to the Canadian Environmental Law Association so that we might provide the group down there with legal counsel. Thus, there was a cost order at the end of the day that repaid, in a sense, those who had prefunded the hearing process. The Hydro hearings have also resulted in cost awards at the end of the day.

Let me deal with them both at the same time. I think there is general consensus that the criteria I discussed before work well. You do not get frivolous interventions and you are not paying--

Mr. Charlton: Mr. Brandt was not here, I do not think, when that was described. Perhaps you could just quickly run through the criteria for him.

Mr. Shrybman: Tom Berger promulgated certain criteria that have been adopted in this province, by the Canadian Radio-television and Telecommunications Commission and by the OEB for allocating the costs of a hearing. They look at such matters as whether there is a need. A gas company does not need costs; it would not get them. Does the group applying for costs have an established track record or a particular interest in the endeavour before the board, or is it simply having fun? Is the interest that is going to be represented by that intervenor not otherwise going to be represented before that decision-making board? This means you are not paying five groups to say the same thing. Indeed, the Consolidated Hearings Act allows the board to appoint a representative of a class of interests that it determines to be the same.

There are seven or eight criteria that we believe work very well. I do not think I would have any argument from Ontario Hydro in that regard. They ensure that the costs orders are within reason, that there is no duplication of intervention by the various groups appearing and that costs go only where there has been a meritorious, sincere and valuable contribution.

One of the criteria is whether the intervention has contributed to the hearing. I participated as a representative of community groups before the Commission on the Regulatory Control of Mobile PCB Destruction Facilities, and we actually got an indication from the board at the outset of the hearing that we would have funds to retain experts. That is when you need them and that is what you need them for. We had to account for the way we were using that money as we went along, and we had to describe in some detail what we were going to use it for. At the end of the day, if you look at the royal commission's report, you will find it indicates that it was very satisfied with the value it obtained for the money it had invested in facilitating public intervention in the process.

The only other argument I would make here is that the eastern Ontario transmission system expansion project probably cost Ontario Hydro--I keep on mentioning figures expecting to be corrected, and I suppose I will be if I am ever too high--in excess of \$3 million.

Mrs. Grier: The hearing process.

Mr. Shrybman: The hearing process. It may have cost the province somewhere between \$500,000 and \$1 million for administering the environment

lawyers, for the board and so forth. Our costs were something in the order of \$50,000.

I think the \$3.5 million is wasted without the \$50,000 investment in public participation. You might as well do away with the public hearing process. People at CELA do not like me to say that, and I do not think anyone in this province could get away with it in this day and age, but it does not have the confidence of the community when people do not have the resources to participate effectively. It does not allow the proposal to be improved because of informed public input. It does not accomplish anything. It is an enormous waste of time and money.

Mr. Brandt: I do not disagree at all and I think many of us have seen too much of the kind of circumstance in which a group of people gets together and has to have a bake sale to raise enough money to lodge an objection to a project. I want those days to be behind us, but I also think there may be a role for government in the process of providing intervenor funding in its role as the protector of citizens' rights. The government has a certain role there, as does perhaps a private corporation or a public utility. I am trying to establish in my own mind exactly what role the government has as part of that intervention.

At the end of the process, as a result of its judgement of a total assessment after the fact, the board can rule that the moneys should be assessed against the proponent of the project, the private corporation or whatever. That is the risk one takes in that endeavour. However, to get the money up front, in certain circumstances I still have a strong leaning towards some government involvement, using the criteria you indicated as part of a balanced agenda of being able to ascertain a legitimate intervention as opposed to the frivolous kind. I am not sure when that money should trigger and flow.

We are very much at an embryonic stage with intervenor funding in this province. We have experimented on a couple of occasions, one being the Ontario Waste Management Corp., where a specific amount of money was established up front for that purpose. The one you referred to earlier with respect to the PCB hearings was one I put in place when I was Minister of the Environment. That was again an experimental process, if you like, in part because of the urging of my critic of the day, Mr. Charlton. We were on a similar wave length with regard to the process. What I was trying to do, however, was to get a balanced process: to avoid the open-endedness of a process and at the same time give an opportunity for responsible and reasonably financed interventions.

That raises another question. Do you have any feeling with respect to the finality of the process? There are some who argue that by financing the process and opening it up for purposes of intervention, you simply encourage a process to go on ad infinitum. Will you comment on time frames so that it can be closed off at a realistic point once all parties have had a reasonable say? I am not looking for the kind of two-day exercise they have in Nevada when they put transmission lines through a desert. I am looking at a process that is applicable to the specific circumstances we have in a heavily populated area such as Ontario.

Mr. Strydom: I will offer two responses. The first one is to your last point and it is not a complete answer. However, let me give you another side of the equation and illustrate with a hearing that proceeded before the Environmental Assessment Board with respect to the establishment of an energy-from-waste facility associated with Victoria Hospital in London. It

might have been while you were the Minister of the Environment; I am not certain.

12:20 p.m.

That was a monolithic hearing. It lasted 55 days. For one facility that is a long hearing. At the end of the day, everybody agreed it could have been much abbreviated. There were a number of reasons it lasted so long. Everybody agreed that one was that the citizens' group that was intervening had not had any funds at the outset of the process to retain consultants to examine the proponent's proposal. They did not know much about it and, in consequence, they used the public hearing process to find out.

They went through every aspect of the proposal in unending detail, to discover at the end of the day that they did not have any large quarrel with it. They suggested a number of conditions that might enhance the safety of the whole operation. The board accepted their conditions, and at the end of the day everybody was happy. Everybody will agree that the hearing could have been five days had people had the review resources at the outset of the process.

I tell that to my clients. They say, "We are concerned about this facility that somebody wants to build in our neighbourhood." We say: "The first thing you have to do is to find some funds to get a consultant to review it. However, if the consultant tells you the project is sound, well designed and will not have substantial environmental impact, you will have to accept that judgement. If the consultant says it is a good project but that perhaps it needs some modification, you will have to accept that. We will represent you at the hearing, but it will be for the purposes of accomplishing those modifications if we cannot negotiate them with the proponent in advance."

However, when they do not have access to those resources, they do not know whether the project is a good one. They have only the proponent's word for it. If they are dedicated enough to finding out and are not totally frustrated by not having any resources to do it at the outset, they will go to the hearing and drag the proponent through every detail and every letter of its proposal to test its validity.

That is part of an answer to your question. It will not always be true, and I admit that. Sometimes the hearing is going to be long. Perhaps the consultants will say the project is ill conceived, not needed, unwise and cannot be carried out in an environmentally viable way. They will fight tooth and nail on every aspect of it right through the hearing process. Therefore, it does not necessarily shorten the process, but it often does shorten it. In either event, it makes the process much more effective.

As to the funding at the outset of the process, I will not argue with you, Mr. Brandt. My clients would be happy to receive the funds from wherever they might arrive. I suggest that if there is going to be government funding at the outset of the process, it should not be accorded, as it is at present, by phoning up the minister's office and pleading over the phone.

It should be a fund of the Environmental Assessment Board or the Ontario Energy Board to be used to facilitate public intervention. There should be nothing ad hoc about it. It should be there and the criteria should be delineated. You would know where to go and you would have to persuade the board that you had an interest that should be heard by the commission, that you were bona fide, that you were going to do a good job, that this was whom you were going to retain, that this was how much it was going to cost and that you should be given the money.

Mr. Brandt: That can be accomplished in part if in future budgets of the Ministry of the Environment there is a line for that expenditure; there has not been up to this point. The phone call you talk about triggers a scrambling on the part of the ministry to find whether there is a pocket where it can get some dollars to assist. Even when it is totally in agreement that some funding should be provided, the question is whether the Treasurer has made an adequate amount of money available in the minister's budget to carry out that kind of exercise.

One of the first steps in avoiding the phone call you are talking about and in putting things on a somewhat more even playing field with respect to the request and the response from the ministry is to have a line in the budget that says, "We anticipate, and there will have to be some guesswork"--

Mr. Chairman: But we agree.

Mr. Brandt: "We anticipate there is going to be \$500,000 worth of demand for that in the future." That money should be provided in the budget.

Mr. Ashe: Amen.

Mr. McGuigan: While we are on the subject, I would like to refer to the placement of the big waste management facility that is currently scheduled to go into your riding. It was scheduled to go into mine in 1980.

Mr. Charlton: He is trying to get everything.

Mr. McGuigan: I just want to touch on a couple of points. It was scheduled to go in in 1980 and it was that close to being accepted by the local community. It went through the same process that Mr. Shrybman described.

When the people really learned what it was all about, and they were close to accepting it, but because of all the bake sales they had had and the hostility and frustration that were brought about by all these bake sales and by women having to quit their jobs and spend full time on this job--they raised \$25,000; the townships spent \$500,000, a lot of which was wasted--the climate in the end was so bad that Harry Parrott withdrew. I think he was that close to getting an agreement, but because there was a hold on the process, people were so upset, so mad and so ugly that they could not have put it in there. They would have been out with shotguns if they had finally put it in, and it had a lot to do with the process and not with the real dangers of the thing.

It would be going in my riding and you would not have to worry about it right now.

Mr. Chairman: My shotgun is loaded, Mr. McGuigan.

Carry on, Mr. Shrybman.

Mr. Shrybman: Okay. To finish this very briefly, I make some points on page 43 that I think have already been touched upon. Let me deal with the last point I make under this heading, and that is about the Environmental Assessment Act and system planning.

This is to suggest that the Environmental Assessment Act apply to system planning endeavours. But I have a concern here, and that is with the

competence of the Environmental Assessment Board actually to make determinations about energy plans and electrical system plans. It simply does not have the resources to carry out that mandate, and rather than equip it as well as the ministry and the Ontario Energy Board, I suggest that the OEB proceedings be consolidated with the Environmental Assessment Act proceedings so that when the OEB sits in judgement of an energy plan, it has the benefit of the participation of one of the members from the Environmental Assessment Board who understands in some detail the requirements of the act and can add that understanding to the Ontario Energy Board's deliberations.

That is happening now, I understand, with respect to a liquefied natural gas project that is before the Ontario Energy Board, which has the benefit of the cross-appointment of a member of the Environmental Assessment Board to the panel that will be making the decision. That is my recommendation, which appears on page 46: that the Ontario Energy Board be added to the list of functions consolidated under the Consolidated Hearings Act and that the Environmental Assessment Act be adopted as the major methodological tool for evaluating energy and electrical system planning options. I think that is essential.

Arguably the act, by its wording, applies now, but nobody seems to be using it, at least not at the early stages of the planning process, where it would have a very useful role.

The last part of my brief deals with energy and social justice. Hydro has given me the subtitle here, and that is "Are There Really No Losers?"

We represent poor people. We represent people who cannot afford a lawyer. I am speaking on their behalf before you today, and in this part of the brief I simply try to highlight for you some of the impacts that are borne by people with fewer resources in this province that are not borne equally by people with more resources or by all of us. The burden is inequitably distributed.

On page 47, I state that no one would disagree with the notion that the energy and electrical system should be both democratic and equitable. I also indicate that the existing system strays rather far from these ideals. In part 1 I have dealt with a fundamental inequity of the existing system, and that is that all who have a stake in it do not have an adequate opportunity to participate in the decision-making process. We have discussed that at length; it needs no further comment.

12:30 p.m.

Before I talk about the costs of the existing system, let me first note Ontario Hydro's no-loser test, which, as I understand it, simply posits that the costs of any option be equitably distributed. Hydro raises the notion with respect to a potential dysfunctional characteristic of a conservation measure. Some people will take up conservation measures. Ontario Hydro's revenue will decrease, as I understand the scenario. Costs will go up and be disproportionately borne by those who have not adopted or taken up the conservation opportunity.

We think Hydro's concern is well founded. It is unfortunate, however, that Hydro has not expressed a similar concern in its demand and supply options study about the equity of other aspects of the current electrical system. I propose here to examine the manner in which the cost of the present system are distributed and, in doing so, I will consider social and environmental as well as economic costs.

Turn to page 48. I am dealing with social and economic impacts here. I note on page 48 that over the last decade and a half, we have suffered from a dramatic escalation in energy prices. We are all aware of that. The spiral of increasing prices is abated for the moment, but a continuing dependence upon nonrenewable and ever-dwindling energy supplies means that it inevitably will soon continue its rapid ascent.

The effect upon poor people in this province is immediate by way of rent and transportation cost increases and less direct by way of contribution to costs of all necessary commodities and by way of a negative impact upon the economic wellbeing of our society.

There have been some studies carried out in the United States. I believe those studies would be as valid for Canada as they would be for the US. We have a colder climate; we must be spending at least as much on energy. Those studies reveal that there are lower-income people who are spending as much as 21 per cent of their annual income on home energy needs, which is a percentage four times that spent by the average home owner.

Everyone suggests to you that energy costs go up. Even at this level they are very high for people on limited incomes and with limited resources and represent a very significant proportion of the income they have to buy food with and pay for accommodation. The choice can be between being warm and being well fed, and it is, we believe, for many of the people who live in this province.

Mr. McGuigan: Substitute the word "food" for "energy" and you come up with even higher ratios because food is a component of energy.

Mr. Shrybman: Our point here is that there are losers, and those suffering most are the ones with the fewest resources to begin with in terms of just being able to afford basic energy services at their present price.

The second socioeconomic impact of the present system is its impact on spending priorities. You have heard a great deal about Hydro's debt. You have more of an understanding of it than I do. It must have an impact on the availability of resources in this province to support social programs for poor people. The more debt we have related to capital expansion from Ontario Hydro the more difficult it is to find the resources for housing, education and other things that disproportionately benefit those in society who cannot otherwise acquire any of those services.

The third impact, and this is an economic one, has to do with rates and the regressive characteristics of our existing rate structure. People have commented at length on the fact that the existing declining block rate structure actually encourages consumption. What is also done is impose the highest cost for electricity upon those who consume the least electricity, and it actually requires of poor people in this province that they subsidize large energy users.

I make the point on page 49 that an equitable rate structure, like an equitable tax system, should levy proportionately smaller charges against people with more modest resources. A regressive rate structure levies the same charge against everyone, regardless of income. A super regressive rate structure charges poor people the most for the same service and commodity. Hydro's rate structure is super regressive.

Mr. Ashe: What you are suggesting then is that Hydro rates should be a social program. That is effectively what you are saying whether you want to put it in those terms or not.

Mr. Shrybman: I think I have a good answer. My recommendation is that this be addressed by way of a tax rebate, and I come to that. This social policy is not Hydro's concern.

Mr. Ashe: As you well know, it does not matter what the service is that a consumer gets--whether it is water service, sewer service, gas service, or a hydro service--there is a cost there because the pipe comes in or the line comes in or whatever, whether you turn on the tap or flush the toilet or turn on the lights. That is why the first block or the first cost appears the highest, because it is there whether you use the damn service or not.

Mr. Shrybman: I will leave it to others to debate the wisdom of declining block rate structure; I am not persuaded the existing system is a reasonable one from any perspective, but I do know that--

Mr. Ashe: That is another issue; that is another issue beyond. What I am saying is--

Mr. Shrybman: I agree with you.

Mr. Ashe: The way you put it the lower someone's income gets or the less he uses, down to nothing, he should pay nothing or close to nothing. I am saying the service costs money whether you use it or not, so there is a built-in cost.

Now the declining rate beyond that is debatable, I agree.

Mr. Shrybman: I agree with you. The same principle applies, however, for the roads of this province. People with large incomes pay taxes that support the road system, people with no income do not pay taxes and do not support it; except through all of the other taxes that are levied in society.

We have a progressive tax system. We should recognize the non-progressive aspects of our rate system and compensate for them in some fashion. It may be reasonable to have a declining block rate structure for the sake of argument, but we have to recognize that it does not distribute costs equitably in society and do something about that.

The next category--really this should not be rates, I have already dealt with that. It is the unresponsiveness of energy programs to the needs of the poor. This is simply to say we have established energy programs like REAP and COSP and so on. The premise for all of them is that everybody has equal access to capital to take advantage of those programs, but of course they do not, so they simply remain unavailable to poor people who, for this reason as well, end up paying more for energy, in particular a poor tenant.

As a result of the structure of rent control legislation in this province, the owner of a building can pass along the full amount of increased heating costs to tenants. If the owner improves the efficiency in operation of the building that capital investment is amortized over a number of years, the owner cannot recoup the investment very quickly. It is a built-in disincentive to the rent control process to actually put conservation into place for those people with the lowest incomes in this province--tenants.

Hydro's answer implies that we remove the programs altogether, because they may have this regressive effect. Our answer is not to remove them but to design them in a fashion that makes them available to all residents of Ontario.

The last cost of the system I deal with is the environmental impacts of the system. You are all aware of the environmental impacts associated with acid rain and high-level waste disposal, but you are probably less aware of a lot of other impacts associated with Hydro's projects that I would argue are disproportionately borne by poor people in this province.

Among them please consider hydroelectric development and the flooding of lands that attends that development. Most often the people impacted are people living in remote and rural areas, often native people. The dislocation that can result in their communities can profoundly disrupt traditional life styles and can totally disrupt and undermine the economic structure of local communities.

The projects we are most familiar with have been developed in Quebec and Manitoba. Those impacts do occur in Ontario, however, on a smaller scale. A new round of supply expansion through hydroelectric facilities will have those impacts on relatively poor and isolated rural communities.

In the matter of uranium mining, I am familiar with the situation of the Serpent River Indian reserve which has lost an indigenous resource of fishing because the Serpent River is now contaminated with radioactive isotopes and the fish are no longer fit for consumption. A large portion of their reserve is devastated by an acid plant that was used in connection with uranium mining activities at Elliot Lake. The band is desperately trying to find some way to rehabilitate a significant portion of its reserve.

It is an unseen, an unknown cost of our electrical system that is borne by people who simply have not been able to defend themselves.

12:40 p.m.

Mr. Gordon: Has that river improved in quality since it was first discovered that it had that type of contamination?

Mr. Shrybman: I do not know. I am sorry, I do not know what the record has been.

Mr. Gordon: So you do not know whether it is worse or whether it has become--

Mr. Shrybman: I know it is unfit for--

Mr. Gordon: I read a report concerning that river about 1977 or 1978. Does it still give the Indian kids rashes when they swim in it?

Mr. Shrybman: I do not know that. I know the community still cannot rely on it any longer for fish, because I think contamination is still coming from the remaining mine tailings.

Mr. Gordon: Are the tailings, which were part of the problem, still causing a problem for that river? Do you know?

Mr. Shrybman: Yes, I would still consider--

Mr. Gordon: Are they still causing a problem?

Mr. Shrybman: Yes.

Mr. Gordon: On what report do you base that statement?

Mr. Shrybman: I base that statement on discussions with a lawyer whose name is Shin Imai, who has been retained by the community to address problems with the river and the abandoned acid plant and who has asked for our opinion. I have not seen any studies or reports. I am simply relying upon his representations to me over the phone.

I am more familiar with the acid plant aspect of the reserve's problems; I have seen those reports.

Mr. Gordon: There have been recent news stories about the acid plant.

Mr. Shrybman: Yes.

Mr. Gordon: But I have not seen anything about the tailings to indicate they are creating a problem. I was just wondering if that is still the case.

Mr. Charlton: We had a presentation to the committee last October. Perhaps you could refer to Hansard.

Mr. Shrybman: I am sorry I cannot reply to--

Mr. Gordon: Perhaps you could refresh my memory.

Mr. Charlton: I do not want to take the time of the committee right now.

Mr. Gordon: Can you refresh my memory---not here and now though?

Mr. Chairman: We need to proceed.

Mr. Shrybman: Let me deal with one last matter. There are impacts associated with coal generation. I am just offering these for the sake of illustration. Those impacts are sulphur dioxide and lead, among other things. The lead is often overlooked.

There have been studies, a number of them carried out in the United States, and one important study carried out here in Hamilton, Ontario, and one in Montreal, to show that lower income neighbourhoods in rural environments are disproportionately impacted by air pollution--such as sulphur pollution and lead pollution.

Mr. Gordon: Do you mean they live close to the plant?

Mr. Shrybman: They live close to the plant. These are called isopleths, and with them you can actually map the plume of pollution that will emanate from a facility and see where it lands in a community and then map the socioeconomic strata of that community. Lo and behold you find that if you live at Bathurst and King, near Toronto Refiners and Smelters Ltd., the air is a lot worse than it is in Forest Hills.

So a correlation has been established rather scientifically between adverse air pollution impacts and poor people, and indeed cancer and poor people, and the whole thing is adding up to an equation that persuades us that poor people bear these costs disproportionately.

Among the pollutants of concern are lead and sulphur dioxide. These are products of Ontario Hydro's smelting process. It is arguable they are borne disproportionately by poor of our society.

The last point I make is that those most exposed to negative impacts are those least responsible for creating the problem. Studies in the United States show that middle-income people consume twice as much electricity and natural gas as do low-income people.

In conclusion, let me state that various facets of the electrical system unfairly distribute the costs of the system and levy disproportionate charges against those least able to afford them. We invite Hydro to demonstrate the same concern for the very real and current inequities of the system that it has established and administers. It would unconscionable in our view to decline conservation initiatives because of the potential regressive effects they may have, while leaving in place an energy system that imposes far greater inequities.

The solution, we believe, is apparent. It requires an approach to electrical system planning in design and implementation that has two things.

First, it iterates all the costs of the system and its alternatives; second, it establishes mitigative and compensatory devices to ensure an equitable distribution of those costs that cannot otherwise be avoided. On page 53 of our presentation, I make the recommendations that we put in place an energy tax credit that would phase some of this disproportionate burden, whatever rate structure we end up with; and that we design energy assistance programs in a way that will ensure full access by everybody in Ontario.

Such programs should include, I would argue, direct grants and specific amendments to rent control legislation.

Finally, all of the costs associated with facility construction and siting should be fully identified, as required by the Environmental Assessment Act, and rationally and equitably allocated. This will mean broadening the ambit of compensatory mechanisms, such as the Expropriation Act, to include costs hitherto unrecognized.

I would like to thank all members of the committee for bearing with me for so long. Those are my remarks. If there are any questions, I would be happy to answer them.

Mr. Chairman: Thank you, Mr. Shrybman.

I have to comment on the attentiveness of the committee, for beyond three hours now. It is extraordinary.

Ms. Grier: That perhaps speaks to the quality of the presentation.

Mr. Chairman: Are there questions? Perhaps they have all been answered during the presentation. If there is none, we will thank you and call for temporary adjournment while we move in camera.

The committee continued in camera at 12:47 p.m.

CA2ΦN

XC 2

-85N22

SELECT COMMITTEE ON ENERGY

ELECTRICITY DEMAND AND SUPPLY

FRIDAY, APRIL 18, 1986



SELECT COMMITTEE ON ENERGY

CHAIRMAN: Andrewes, P. W. (Lincoln PC)
VICE-CHAIRMAN: Ashe, G. L. (Durham West PC)
Charlton, B. A. (Hamilton Mountain NDP)
Cureatz, S. L. (Durham East PC)
Gordon, J. K. (Sudbury PC)
Grier, R. A. (Lakeshore NDP)
Haggerty, R. (Erie L)
Jackson, C. (Burlington South PC)
McGuigan, J. F. (Kent-Elgin L)
Polsinelli, C. (Yorkview L)
Sargent, E. C. (Grey-Bruce L)

Substitution:

Shynko, Y. R. (High Park-Swansea PC) for Mr. Jackson

Clerk: Carrozza, F.

Clerk pro tem: Mellor, L.

Staff:

Moore, L., Adviser, Electricity Section, Policy and Planning Division,
Ministry of Energy

Richmond, J., Research Officer, Legislative Research Service

Snell, B., Consultant; with Canada Consulting Group Inc.

Witnesses:

From Ontario Hydro:

Snelson, J. K., Assistant to the Director, System Planning Division

Marriage, E. A., Manager, Bulk Electricity System--Resources Planning, System
Planning Division

McConnell, L. G., Vice-President, Power System Program

Campbell, T., Chairman

Palmer, H. C., Director, Market Development Division

SELECT COMMITTEE ON ENERGY
PHASE II - CHOOSING DEMAND AND SUPPLY
OPTIONS FOR ELECTRICITY IN ONTARIO

Friday, April 18, 1986

The Committee met at 9:36 a.m. in committee room 2.

Mr. Chairman: Will you come to order, please.

Before we get into the business of today's schedule, I would just like to refer to one matter and that is simply this, that reference material that has been deposited with the staff of the Committee with a list of the individual documents has been tabled as Exhibit No. 71. And this documentation will be available to the public by appointment upon request through the Clerk of the Committee. Due to the volume of the documentation the material will not be reproduced, as has been the case with other material and therefore, must be restricted to use within the clerk's office.

Additional documents may be tabled with the clerk at a later date. These documents will become Exhibit Nos. 71A, B, C, D, however number of them there are, as required and will be accessible in the same manner as all those exhibits that are numbered 71. Thank you very much.

We are pleased, this morning, to have the Hydro panel back with us for their response to our hearings over the last 10 days. And I would ask Mr. Snelson to begin, please.

ONTARIO HYDRO

Mr. Snelson: Good morning. My name is Ken Snelson, I am in the System Planning Division, and I think probably most of you are familiar with my face because I have been around here for most of the last three weeks.

This presentation covers Ontario Hydro's response to the presentations of others. It deals primarily with the presentations of those who have appeared before you in the past three weeks. Thirty minutes or so is not sufficient time to also respond to the written briefs that you have received.

In the last three weeks this Committee has

heard a large volume of information from a number of people with a wide variety of views. The information presented has concentrated heavily on the demand options and on non-utility generation. However, the time available has hardly been sufficient to do justice to these options, let alone consider the major supply options in detail as well.

0940

This response will concentrate on the issues that are relevant to the Demand/Supply Options Study; it will not address the the broader policy questions that have arisen in a number of presentations.

The presentation is divided into three parts. The first part will deal with some of the issues surrounding planning in general and the integration of demand and supply planning. The second, and largest part, will deal with the demand side, while the third part will deal with some of the supply side issues including independent or non-utility generation.

The least cost planning approaches were discussed at length, particularly by Messrs. Linder, Jones, Miller, Wellinghoff and Markowitz, and the U.S. experience in this field is extensively reviewed. The goal of such frameworks is to: explicitly recognize uncertainties and risks; recognize the value of a diversified resource portfolio that includes a number of feasible options; formalize trade-offs in the planning process; evaluate all options on the same basis; create awareness of the broad societal perspective.

The Michigan planning model was described and the Committee expressed interest in obtaining more details about it. The functions of the Nevada consumer's advocate office were also described and showed how one state chose a fairly detailed legislative direction to its utilities for planning. The Northwest Power Planning Council strategy was presented and the council's extensive regional planning authority was described.

The committee was bombarded with flow charts describing each witness's view of a proper integrated planning process. Dr. John Robinson suggested that because Ontario Hydro's process does not follow his flow chart, it is not an integrated approach. In our view, there are many ways to skin a cat. A process is integrated if it considers the relevant factors, including a comparison of demand and supply options on a common basis; Ontario Hydro's process is one of a number of possible integrated processes.

Mr. Don Robinson reviewed Ontario Hydro's Demand/Supply Options Study process and indicated some of its strengths and some areas where he thought it could be improved.

I want to emphasize that Phase I of the Demand/Supply Options Study did not get into issues such as trade-offs, explicit considerations of risks and uncertainty, but this is within the scope of Phase II.

Ontario Hydro agrees with the spirit of most of the suggestions, in that we believe in evaluating both demand and supply side options on the same basis, including as many of the relevant factors as possible.

A number of witnesses cautioned against the automatic assumption that what works in one area of the U.S. will work in Ontario, or even in another area of the U.S. We agree that solutions must be appropriate for conditions here in Ontario.

Load Forecasting: All of those who discussed demand side planning, including Hydro, agreed that end use modelling is required for effective evaluation of demand-side programs. It was also clear that we need more end use data. We agree and we are working to improve it.

While many witnesses indicated that there is a definite trend towards end use modelling and forecasting, there was no agreement on whether end use modelling should be the primary load forecasting tool. Dr. Robinson indicated that end use models should not be used for predictive forecasting. In his view they should be used to explore scenarios. The Joint Industry Task Force does not see end use modelling as an appropriate forecasting method. On the other hand, Mr. Cavanagh, Mr. Wellinghoff and others advocated exclusive use of end use load forecasts.

Another issue is whether or not end use forecasting reduces uncertainty.

0945

Here again there was disagreement. Mr. Cavanagh described how the "diverging jaws" of the high and low forecast narrow when end use efficiencies are incorporated, while Mr. Linder concluded that it is "not clear that end use models would have done any better in the 1970s."

Dr. Robinson criticized predictive forecasting because it is unreliable. Despite this, the starting point in his and Mr. Torrie's end use analysis

relies heavily on predicting the size and nature of the energy services market. Mr. Bruce MacOdrum clearly indicated that this first stage is fraught with uncertainty. The uncertain forecasts of economic activity, population and productivity will all be key determinants of how much industry will produce, how many new houses will be built and how many refrigerators will be sold.

Ms Mackay-Lassonde indicated in Presentation 4B that Ontario Hydro is acquiring new end use models from the Electric Power Research Institute that incorporate some elements of econometric forecasting into end use models. Ontario Hydro considers end use modelling to be an important part of demand planning and load forecasting. However, it cannot be the only tool; econometric forecasts will continue to be necessary as part of the forecasting process.

Hidden Costs: Mr. Berkowitz discussed what he termed hidden costs or subsidies. We agree that the provincial guarantee of Ontario Hydro's debt is a benefit to our customers. This is a particularly desirable benefit because there is no cost to the Province, as the Deputy Minister of Treasury and Economics testified last fall.

To the extent that the Provincial guarantee lowers Ontario Hydro's cost of capital, all capital intensive options are favoured, as Mr. Berkowitz agreed in answer to Dr. Moore's question. The options that are most favoured due to a lower cost of capital are conservation, hydraulic and nuclear in that order.

Mr. Berkowitz's analysis of research expenditures is of little value because the research costs are not related to the potential to contribute to future energy needs.

A more detailed analysis is attached to this presentation as Appendix A.

Public Consultation: As you know, Ontario Hydro has been involved in public consultation processes and will conduct more public consultation before the Demand/Supply Options Study is completed.

Mr. Shrybman discussed at length the need for public participation in electricity planning. He was invited to and did participate in our public consultation program although he did express some concerns about the nature of the process.

A number of witnesses discussed other

consultation processes. Mr. Linder described a very formal consultation process in Michigan where the regulators and other interested parties are represented on working groups that direct the studies. Mr. Wellenhoff, the Nevada consumer advocate, described a very informal process of consulting the public. Mr. Markowitz indicated that what he considers important is that the public should be consulted before a decision is made to spend money.

Ontario Hydro's process includes consultation not only before a decision has been made to spend money, but also before a specific proposal has been made.

I would now like to turn to issues that have been raised in demand side planning. I think all witnesses, including Ontario Hydro, agree that saving energy is better than wasting it; there are opportunities for economically achieving greater efficiency that should be pursued; and these opportunities can reduce the need for new generating capacity.

0950

Another advantage that has been mentioned by many witnesses is the improved flexibility of demand options. Mr. Cavanagh and others have mentioned that "the conservation options can be added in small packages, not indivisible 500 MW or 1000 MW units" and that the lead times are in "months or in years". We believe that demand options have different flexibility problems from major supply options.

Other witnesses have talked about the sources of inflexibility that apply to demand planning, for example, the need for lengthy market research and pilot programs (T. Davis); the need to build a large organization to implement demand programs - Dr. Rosenfeld indicated 2,500 people in Pacific Gas and Electric; Mr. Tamblin talked about a 10-year plan for commercial conservation. Mr. Hickok of the Bonneville Power Authority indicated that they are maintaining a \$125 million per year program employing 700 people in BPA plus many others in order to keep the infrastructure in place in a time of surplus.

The conclusion of Dr. Rosenfeld and others is that if the surplus is expected to last to 1995, now is not too soon to start. This is the same conclusion stated by Mr. McConnell in Presentation 8.

A logical place to start examining demand management is to consider how much theoretical potential there is for conservation - could we theoretically

achieve the same level of energy service with less electricity and with less cost to society. Dr. Rosenfeld addressed this issue to California - and by implication for Ontario - indicating that the potential savings were very large, possibly large enough to eliminate growth in demand. This was illustrated by examples of household appliances and residential and commercial heating, lighting and air conditioning - areas with which he is familiar.

Dr. Robinson's load scenario for the year 2000 also showed the theoretical conservation potential to be large.

However, the practical issue that must be addressed is how much conservation can be induced within the structure of our society and reasonable changes to it, given that several million individual customers make the ultimate decisions about how much electricity will be used. Drs. Rosenfeld and Robinson gave little guidance on this issue. Dr. Rosenfeld started his presentation by pointing out that he is not an expert in marketing while Dr. Robinson took pains to point out that his scenario was not a forecast of what is likely to happen, but rather a possible future.

Although we agree that the theoretical potential is large, the important issue is how much of the theoretical potential can be achieved in practice and how quickly.

One practical issue that was discussed is whether there is sufficient data to do adequate demand planning. Mr. Cavanagh, on the first day, implied that plenty of data is available in California and the Pacific Northwest, and that it can be readily transferred to Ontario. Mr. Hickok also thought that data in the residential and commercial sectors could be transferred. Other witnesses have stressed the deficiencies in data required to do good demand planning.

Mr. Davis indicated that most utilities do not have much data on end use. Ontario Hydro indicated that the requirements go beyond the data required for end use load modelling - for example, for electrically heated houses you do not just need to know how much electricity is used for heating, you need to know how many houses have insulation in the attic and whether there is room for more.

The Tamblays indicated that Ontario Hydro needs more data on the conservation potential in commercial buildings. Ontario Hydro agrees - the commercial conservation potential in Presentation 5D is

based on studies we commissioned Mr. Tamblyn's company to do and they are presently working with us to refine those estimates.

0955

Mr. Jones suggested that the industrial market is frequently overlooked and although it is more than one-third of electricity demand it has not been discussed extensively in this hearing. Mr. Figuieredo gave a brief overview showing a large theoretical conservation potential. However, Mr. Hickok indicated that reliable data on the industrial conservation potential is difficult to obtain because each industry, and often each plant within an industry, is different. The Ontario Joint Industry Task Force, which includes the large electrical customers, indicated that the biggest efforts in conservation took place in the 1970s when energy prices were rising rapidly and that the remaining potential will be expensive to harvest. Ontario Hydro considers that more information is required and has commissioned a number of studies of industrial conservation potential as outlined in Presentation 5D.

Mr. Davis and Mr. Jones mentioned several times the need for more market research on customer acceptance of demand management programs, and the need for careful monitoring and tracking of their effectiveness. Mr. Hickok said that most utilities do not know a doggone thing about how effective their conservation programs are. The Hood River study has been instituted by the Bonneville Power Authority to answer some of these questions. Hood River is a thorough study of the effects of a residential conservation program that is 100% funded by the utility and accompanied by an intensive promotional campaign - it is interesting to note that this approach is not cheap. Mr. Cavanagh explained that they are spending \$4,100 U.S. on each house. If you applied that to Ontario to every house you would get to close to \$15 billion. Ontario Hydro appreciates the willingness of the Bonneville Power Authority in the Northwest Power Planning Council to share the results of their programs with us throughout the Demand/Supply Options study. We are also planning to undertake market demonstration for conservation here in Ontario - a direction that was advocated by Mr. Duncan Allan the Deputy Minister of Energy.

Ontario Hydro recognizes that we need more data for demand planning and we have set in motion the activities necessary to acquire it.

Barriers to Energy Efficiency: The primary mechanism for conservation is that customers save energy

to reduce their electricity bill. In the current jargon this is called 'natural conservation'. Ontario Hydro does include natural conservation in its load forecast. Large improvements have been made in efficiency in the past (Presentation 5C); and the Joint Industry Task Force believes that most cost effective conservation measures in industry have been taken. However, there has been widespread evidence from Ontario Hydro and others that frequently the price incentive is not enough because of what are generally know as "barriers". Barriers could take many forms. Mr. Marriage provided a list in Presentation 5A and Dr. Brooks in discussing more efficient commercial lighting gave a list of "Factors affecting market penetration" - another name for barriers.

Yesterday, this Committee asked us if there were implementation problems with any options - implementation problems is quite a good description of barriers. I am including as Appendix B to this response an Ontario Hydro document which gives a listing of barriers and various strategies to overcome them. I have only time now to discuss one or two of the barriers and strategies.

One barrier is that customers may not have enough information to be aware of the economics of energy saving options that they could implement. This barrier can be overcome by information and advertising programs. The representatives of the natural gas industry said that information programs were enough to encourage the conservation of gas. Most witnesses, by implication at least, supported promotional programs to encourage conservation.

1000

However, you will remember that Ontario Hydro in Presentation 5E has asked you to consider whether we should also be encouraging increases in demand where it leads to increased provincial prosperity. We feel that this is an important issue for you to address although not many of the witnesses addressed it. Mr. Hickok and Mr. Davis both indicated that there are circumstances where it is right to improve new efficient loads and promote conservation simultaneously, but that it is not easy. Mr. Tamblyn said that Hydro-Quebec's market research program, which he praised, was geared to off-oil conversions.

Another factor in this discussion is that doing things efficiently may not mean less electricity use - I refer you to the definition of resource conservation in Presentation 5A. Mr. Duncan Allan

indicated that a projection of the future where there was no growth in energy demand showed increased electricity use. Mr. Ralph Torrie indicated that electricity would increase its market share of the heating market in energy efficient houses. It is not always possible to separate conservation from promoting efficient use.

Traditionally, Ontario Hydro's marketing programs are aimed at both increased electricity use and conservation. For instance, many programs in the industry and commercial sectors are directed towards applications where electricity is more efficient, produces a better product and lowers production costs - but may increase electricity use. One residential program promotes supplementary heating which is frequently the customer's least cost solution to that kind of heating problem. Other programs such as the Residential Energy Audit Program assist customers in making more efficient use of electricity.

I can give you a number of leaflets describing the type of energy efficient options that are available-- and there are some copies here if the clerk wants to distribute them--the type of energy efficient options that are available and are being promoted by Ontario Hydro. This example is a couple of new office towers in Etobicoke, just west of Highway 427. Compared to office buildings built in the 1970s, these buildings use about one-half the energy per square foot. Part of this efficiency improvement is achieved through the use of electric heat pump technology, which allows heat to be moved from parts of the building that have too much heat, for example, the sunny side, to other parts, such as the shady side, which need more heat.

Should promotion include both new efficient uses and increased efficiency in existing uses if they both contribute to customer satisfaction and provincial prosperity? This is a question on which we would like your views.

Other barriers include institutional arrangements. These barriers often occur for leased apartments and commercial buildings. Mr. Tamblyn said that energy is less than 1% of a building manager's concern. Dr. Brooks indicated that the split incentive between owner, manager and tenant might be overcome by new lease arrangements.

We have some experience in this area which may be of interest. Individual metering has been proposed as an energy saving measure in residential apartments. This was studied by a joint task force in 1977 and the report clearly showed the potential savings.

This report was tabled in the Legislature by the then Minister of Energy. However, there were substantial objections because of unpredictable heat gains and administrative difficulties. You may wonder what I mean by unpredictable heat gains, but I can give you a personal example.

Seventeen years ago, the first winter that I was in Canda, myself and my family lived in a townhouse, a rental townhouse, with individual electric heat but it was not metered individually. We spent the whole winter with our thermostat turned off because we were quite happy at 60 degrees, with our sweaters on and our slippers, and there was enough heat that came through from our neighbours to keep us warm enough.

1005

Mr. Ashe: You can also tell where you came from.

Mr. Snelson: Implementation of individual metering was left to the discretion of the municipal utilities and apartment owners. Subsequent studies has shown that it may, in fact, be more efficient to have bulk metering with a comprehensive management system such as in the Etobicoke office towers. In this area, to be successful, it is necessary to work closely with all the participants including developers, building owners and tenants; there may be other significant factors besides energy efficiency which have to be taken into account.

Another type of barrier discussed by many witnesses is that customers often have a shorter time horizon in financial decision-making than the utility; they do not implement options if the payback is longer than 3-5 years while the utility may accept a much longer payback. One of the proposed solutions to this is utility incentive programs offering grants or low interest loans. A large part of the strategic conservation potential discussed by Rick Fleming in Presentation 5D was based on the expected response to incentives that Ontario Hydro could offer. The most significant issue surrounding the size of incentives that can be offered and the expected conservation that will be achieved is whether or not the equity issue is seen as being important; should incentives be restricted so that participants are not subsidized by non-participants. The Committee heard many views on this issue.

Dr. Rosenfeld and Mr. Cavanagh thought that this test should not be applied because it was equitable if all customers could participate; Mr. Cavanagh described

the "no losers test" as a "hardly any winners test". Mr. Hickok of the Bonneville Power Authority said that with their programs non-participants would not have higher costs - which implies that their incentives are consistent with a "no loser test". Dr. Burrell discussed at length what he called "Ontario Hydro's lack of economic incentive". The issue he was talking about is really the "no loser's test" because any increase in costs to Ontario Hydro is really an increase in costs to all customers. Todd Davis indicated that a number of U.S. conservation programs have led to increased rates due to lack of cost/benefit analysis. He raised another interesting point which was also discussed by Mr. Peter Miller. Incentive program participants tend to be 'upscale', high income, because they have more energy uses to upgrade and can afford their share of costs. This leads to an unwanted subsidy from the less affluent, who cannot afford to participate, to the more affluent who can. Mr. Tamblyn also raised this issue when he asked whether it would be acceptable if Ontario Hydro were seen to be giving an incentive of \$100,000 to Olympia and York to upgrade one of their buildings - he thought it would be.

However, on this issue the last comment I want to quote is from Mr. Jones. In answer to Mrs. Grier's question "From whose point of view should such analysis be done?" he replied "As an economist, I think it ought to be done from society's point of view. Politicians do not always agree with economists. You may find a situation in which people who participate in a demand side program find that their bills go down, and you may have a screaming minority whose bills go up".

As you know, Ontario Hydro has not taken a position on the equity issue but is asking the Committee for its input.

Peter Miller indicated another problem with incentive programs; they may have the side effect of increasing electricity's market share. "Incentives for appliances in which different fuel suppliers compete could have the further unintended effect of influencing fuel choice. This problem has been a major concern for the Northwest Power Planning Council which has proposed rebates for insulation in buildings that will be electrically heated".

1010

Put more simply, if Ontario Hydro subsidizes increased insulation in electrically heated buildings most new buildings may be electrically, instead of gas heated. The representatives of the natural gas industry

indicated that to prevent this it is necessary to "also consider other fuels in the equation".

Peter Miller indicated that the solution to this problem and a number of other problems is mandatory efficiency standards, a subject raised throughout the hearings.

Many witnesses have advocated mandatory standards for appliances and residential and commercial buildings. This has been an effective approach in the past (for instance the Cascade 40 water heater discussed by Mr. Palmer in Presentation 5C); and it can also be an effective tool in the future. Appendix C, to this presentation, includes a discussion of the current status of standards in Ontario and some of the opportunities for the future.

The evidence that you heard about the effectiveness of standards was somewhat contradictory. Mr. Miller thought standards were more effective than either incentives or information programs. Dr. Rosenfeld outlined some of the efficiency improvements that are being achieved by standards in California. However, even those witnesses in favour of standards pointed out some of the pitfalls.

Dr. Rosenfeld pointed out that many new buildings turn out to be less efficient than the standard. Mr. Tamblyn indicated some of the problems of training building managers to operate energy management systems. We can agree with Mr. Cavanagh that we do not need 'thermostat police' but maybe we do need 'standards police'.

Mr. Miller said that there had been strong objections by manufacturers to appliance standards in California. Dr. Rosenfeld used refrigerators as an example to explain that these objectives had been overcome by applying standards in stages over about 15 or 20 years so that each stage at least 85% of available refrigerators would meet the standard. Given their 20 year useful life, this approach can take 30-40 years to be fully effective.

Mr. Cavanagh mentioned the difficulties when building standards were changed in the Pacific Northwest with no recompense to builders for the increased costs of meeting the standards. He said "Understandably, the builders went berserk". In this case, the solution was utility financed incentives.

Mr. Hickok told you that they can also encourage local jurisdictions to introduce standards by

imposing a surcharge of local utilities that have not met the regional standards by 1989. He added that "raising a surcharge will be something akin to a nuclear explosion".

One question this committee may want to address is, how far do we want to go in enforcing standards and rules for energy uses? Do we want a situation such as Dr. Rosenfeld described in California where you cannot have electric heat unless you can convince the authorities that it is the lowest cost option. You will recall Mr. Niitenberg's story about his family appearing "in front of the commissar" to explain why they needed electricity.

In calculating the effects of standards and other government policy initiatives, it should not be assumed that all savings are reductions from the forecast load. The forecasting process tends to project into the future the continuation of past trends, including past trends in government policy. It may be that some new government initiatives are required to bring about the improvements in efficiency that we have shown as occurring naturally. Dr. Brooks indicated the difficulties in preventing the cancellation of the Energuide labelling program. At the very least, government programs as this will need to be continued if the forecast natural conservation is to occur.

Despite the difficulties, Ontario Hydro is in favour of the most efficient standards that are cost effective for our customers and acceptable to the manufacturers, builders and other interested parties.

I am now going to very briefly discuss some of the evidence that you heard on supply issues.

Although it only accounts for 5% of current electricity supply, independent generation was the most extensively discussed supply option.

1015

Mike Dupuis, the owner of the Galetta power station, symbolized the entrepreneurial spirit and success in developing small hydro sites in Ontario. He also expressed the frustrations and difficulties met in this business.

Gordon Graham of Rose Technologies emphasized that food projects have to be fundamentally sound, economically and technically. Mr. Dixon, in addition to describing the benefits of cogeneration, also pointed to the concern for continued supply to the grid if, for example, a cogenerator goes out of business. They

indicated that the factors that lead to success in cogeneration are painstaking design and study, tender loving care and special economic circumstances.

The Joint Industry Task Force agreed that the potential for cogeneration is close to Ontario Hydro's estimates.

The representatives of the natural gas industry saw gas-fired cogeneration as a worthwhile option. Mr. Dixon also indicated that, apart from some waste fuels, most cogeneration would burn natural gas. He also showed the sensitivity of the economics of cogeneration to the relative gas and electricity prices.

A number of witnesses saw merits in longer term contracts with Hydro to purchase their electricity. Standardized agreements were also seen as favourable to small producers.

Mr. Duncan Allan saw benefits in small power production relating to diversity, increasing productivity and competition in Ontario industry and reducing transmission needs.

Mr. David Argue concentrated on examining Hydro's purchase rates and wants to see a methodology developed and then reviewed periodically by an independent body. While Mr. Argue believes that the purchase rate should be raised, Mr. Rubin explained the 'mare's nest' of potential problems if the purchase rate is set above the selling rate. His solution, of course, is to raise both.

As the Ministry of Energy indicated, policies and purchase rates for independent generation are under review. The governing principle of Ontario Hydro's current policy is: that, Ontario Hydro will support parallel or independent generation by: providing technical information on feasibility and economics for potential generation projects in Ontario; purchasing electricity from parallel generators, or; wheeling electricity from such sources to another service location owned by the parallel generator.

As you will recall, Ontario Hydro, in Presentation 6F, asked you to consider whether a premium should be paid for small alternative generation technologies.

Another issue that was discussed was the length of time to obtain approval for a large central thermal station which is estimated to be five to eight years. A number of witnesses, such as Mr. Cavanagh,

observed that this increases the risks and costs of commitment to such plants. On the other hand, The Joint Industry Task Force questioned why approvals should take so long? As an example, they mentioned that approvals for a nuclear plant in New Brunswick were obtained in only two years, and construction could take only give years. Mr. Wellinghoff confirmed such estimates stating that it takes only seven years to plan, obtain approvals for and build a major thermal power station in Nevada.

The Minister of Energy found it 'hard to believe' that transmission in southwestern Ontario has taken so long as it has and it not yet approved. He was alarmed at the \$200 million to \$400 million in costs associated with the delay.

Mr. Hemmingway explained the Northwest Power Planning Council's optioning process whereby the effective lead time is shortened by obtaining the approvals based on the high load growth scenario and shelving the approval until it is necessary to commit construction.

Long lead time is a major implementation problem for major supply options.

Ontario Hydro is keenly aware of the value of shortening lead times. We have been studying this subject for some time and are asking this Committee for its views on how to modify the approval process to achieve greater flexibility.

In the interest of time, I will leave the notes on Coal and Nuclear Purchases, and that really concludes my comments. I hope these comments will be useful to you in preparing your report.

Mr. Chairman: Thank you, Mr. Snelson.

1020

I think perhaps we will carry Mr. Marriage.

Mr. Marriage: Although I was here a couple of weeks ago making some presentations, I thought, for some of the new people that might be here, I would introduce myself first. My name is Arthur Marriage. I am the Manager of the Bulk Electricity System, Resources Planning Department in the System Planning Division, and I will be making the presentation on Darlington.

We made detailed presentations to the this Committee in the Fall of 1985. In those presentations we presented evidence supporting completion of all four

Darlington units on schedule, by demonstrating:

1. That it was economic to complete Darlington on schedule over a wide range of load forecasts.
2. Completing Darlington on schedule is an important part of the program to meet future acid gas emission reduction targets; and
3. The completion of Darlington makes a significant contribution to maintaining low electricity rates in this province.

The analysis presented considered the cost impacts of cancelling all four units, cancelling units three and four and delaying units three and four. And, as I have just noted, we also examine the Darlington's contribution to reducing acid gas emissions and the impacts of cancelling Darlington on the electricity rates you and the rest of us would have to pay.

I do not plan on reviewing our presentations from last Fall today, since that is already on the record. However, before proceeding with some additional information and analysis since that time, I would like to highlight, with one overhead, the bottom line we presented last fall on the question of cancelling or delaying Darlington units three and four.

In our review of Darlington last Fall, we presented the costs associated with cancelling or delaying units three and four, as part, and a very important part, of our rationale for completing all four Darlington units on schedule. And the costs are summarized in this overhead.

1. Completion of units one and two and the cancellation of units three and four would require spending 83% of the total cost if we completed the entire plant, while only giving us half the output.

2. The cancellation of units three and four and the consequent activities required to meet the load, assuming fossil generation was employed, in addition to the demand management, hydraulic generation and independent generation options, would incur costs ranging from \$1 billion in 1985 present value, all the costs brought back to today, up to over \$3 billion over a wide spectrum of load growth.

1025

3. A one year delay of units three and four

was estimated to cost our customers \$210 million in, again, 1985 present value made up of both the project costs and the field costs.

This analysis was provided to the members of this Committee in the form of a System Planning report number 649SP dated September, 1985, and entitled "Review of Darlington".

Now, moving on. Since our analysis and our presentations last Fall, a number of things have happened. In light of the Committee's recommendation on Darlington and changes to other key factors, we have taken certain actions and carried out further analysis regarding the Darlington project.

The rest of this presentation will provide you with some supplementary information on the following topics:

1. Ontario Hydro's response to Recommendation No. 3, on Darlington, in this Committee's report on the 1985 Fall Hearing;

2. Hydro's recent load forecast and its actual experience; and

3. the impacts of the new acid gas emission regulation established in December, 1985.

The first thing I would like to do is to discuss Hydro's response to this Committee's Recommendation No. 3 which stated:

"No further significant contracts for Units three and four should be let for materials not required for construction during the next six months while the committee studies demand and supply options."

This report was submitted to the government by the Committee in December, 1985.

Ontario Hydro immediately initiated action on the recommendation and we are pleased to report that we were able to meet the spirit of the recommendation without any major change in costs.

Contract commitments were reduced, to the extent practical, to minimize additional commitments to units three and four from the period January 1, 1986 to July 1, 1986.

In our presentations last Fall, we used a load forecast prepared in 1984. However, while we were

talking to you we were also working out a new forecast, which was approved by our Board of Directors in December, 1985. The new load forecast, reached after reviewing all of the factors involved, is essentially the same as the previous forecast. Therefore, our analysis last Fall and the conclusions reached are still appropriate today.

As you will recall, the load growth was low during the recession in 1980-82. However, even as the hearings were concluding and the report was being produced, your report last Fall, we were experiencing the third successive year of strong growth in the electrical demand. This three years of growth of roughly 15,000 KWH, is equivalent to 60% of the total Darlington output of all four units. In fact, we have not had as much growth in electrical energy demand in any three-year period as we have had over the last three years.

In the Fall of last year, we presented evidence to you indicating that completing all four Darlington units on schedule was important to meeting the acid gas emission requirements. In essence, Darlington deferred expensive scrubber until 1996.

1030

Since then, new regulations have come in to effect, which reduced the emission limit from 300,000 metric tonnes to 215,000 tonnes in 1994 and beyond. These new requirements make the completion of all four Darlington units more vital. Even with all four units at Darlington completed on schedule, this new regulation will require advancing scrubbers for some other form of emission control facilities from 1996 to 1994.

The studies are still in progress to determine the most cost-effective way of meeting the new requirements. Assuming Darlington three and four are completed on schedule, the extra costs of this new requirement is estimated to be approximately \$1 billion again in 1985 present value based on the same analysis used in the Darlington review last Fall.

It is worth noting that the cancellation of Darlington three and four could increase the acid gas emissions by about 150,000 tonnes, and that is roughly 70% of the total limits in 1994.

Without units three and four, the extra cost of meeting your requirements has been estimated to be \$1 billion more in, again, 1985. These costs not only include the advancement of the scrubbers, which I mentioned to you earlier, but a number of other actions that would likely be required in terms of purchasing,

more expensive low sulphur coal, a curtailment of sulphur exports and possibly burning gas and low sulphur oil.

In conclusion, we believe the evidence presented last Fall, strongly supports the completion of all four Darlington units on schedule. And the additional evidence we have just presented, especially the more stringent acid gas limits, strengthens this position.

And I would like to thank you.

Mr. Chairman: Thank you, Mr. Marriage.

We will carry on. Mr. McConnell.

Mr. McConnell: Good morning, ladies and gentlemen. This presentation is a review of the Demand/Supply Options Study.

My review is organized into five parts:

Part 1 - Why Ontario Hydro is Proud of its Past Performance

Part 2 - Shaping the Future

Part 3 - Demand Options

Part 4 - Supply Options

Part 5 - Closing Remarks

Dealing first with Part 1, Why Ontario Hydro is Proud of its Past Performance.

1035

Who are the beneficiaries of the electrical service which Ontario Hydro provides? In our presentation to you, we have reviewed our goal, our mission and our values as an essential public service. Ontario Hydro seeks to maximize benefits; first to its customers, individually and collectively, and second, to the Ontario Community as a whole.

In planning, the criteria we use to evaluate the options focus on maximizing the benefits and minimizing the dis-benefits.

Our key objective is to provide our customers with reliable power at the lowest cost. Community benefits include the jobs and prosperity created by electrotechnology. We believe the improvement of end-use

efficiency will benefit both our customers and the community as a whole.

Let us talk about our cost track record. We, in Ontario Hydro, are proud of our track record regarding the cost of electrical services and we have reason to be proud. In terms of constant dollars, our grandfathers, our fathers and we, have steadily reduced the cost of our electrical service over nearly a century from 1906 to 1986. It is our intention to continue this tradition.

Ontarians use many forms of energy - oil, natural gas, electricity and others - but only electricity allows us to use our main indigenous primary energy resources. 32% came from renewable Ontario hydro-electric resources in 1985, and 42% of our electricity came from uranium resources in 1985. Ontario has abundant uranium.

Next, looking at Canadian cost. Canadians can be proud of the low cost of electricity that is produced from hydro, coal and uranium. You see on this slide all of the provinces in Canada and the position of Ontario here.

Ontario - Relative to the World: The cost of electricity in Ontario and Canada is very low compared with the rest of the world. Our neighbour, the U.S.A., which has a reputation for its creativity, has costs which are generally more than double the costs in Ontario. Typically, our nuclear produced electricity costs less than half that in the U.S.A.

What about our demand management track record. We are proud of our grandfathers who established the Ontario Hydro Research Laboratory and developed the most efficient and most durable light bulb in the world in 1912.

We are proud of our fathers who developed the efficient hot water heaters in 1934.

We are proud of our own achievements - the development of efficient electrically heated house, the development of electrical appliance standards for the energuide program, and the development of northern climate heat pumps.

We are proud of the development of peak shaving through interruptible incentives.

We are proud of the implementation of electrical peak shifting giving Ontario Hydro one of the highest load factors in the world.

We shall apply the lessons learned in the past to the shaping of the future.

Now moving on to Part 2, Shaping the Future. The purpose of the Demand/Supply Options Study is to shape the electrical future of Ontario. To do this, we are examining the Demand Options as well as the Supply Options.

In planning the future, we must know and respect the values of the Ontario community we serve.

We have made presentations to you to indicate how we are seeking public input during the Demand/Supply Options Study. We have also indicated to you that we will be seeking further public input after we have developed our preliminary recommendations at the end of this year.

1040

We have told you that Ontario Hydro uses an Integrated Planning Process. For example, the implementation of a demand options is interactive with all of the other parts of our planning process and would have a very and would cause a change to transmission options, the reserve that would require to meet reliability requirements, to supplied options, and, indeed, we would adjust our forecast for our electricity needs.

In our presentations to you, we have discussed some fundamental planning concepts.

You have heard witnesses before this Committee say that good planning requires bandwidth forecasts, risk analysis and total least-cost principles. In fact, Ontario Hydro has been using these planning tools for many years.

We have also presented to you the different kinds of plans we produce, both short term and long term.

On the subject of approvals, our recommended plans undergo extensive internal and external reviews before approval. Within Ontario Hydro plans are reviewed by senior staff, by our Executive Office, by the Technical Advisory Committee of the Board of Directors, by the Social Responsibility Committee of our Board of Directors and by our full Board of Directors. Externally, plans conform to government policy, all major projects are subject to the Environmental Assessment Act and if approved, require an Order-in-Council from the Cabinet to proceed.

The Demand/Supply Options Study - What is it? The end product of the study is a basic strategy to guide the future development and selection of demand options and supply options to meet Ontario's electricity needs. Accordingly it is said to be a "Resource Development Strategy". It is not a detailed plan that indicates what, where and when specific demand and supply options will be implemented.

Such detailed plans will continue to be developed annually.

Just to review the Study Timetable. As we have proceeded with the Demand/Supply Options Study we have listened and we have learned. In the process, we have changed the study and its timetable. We expect it will be necessary to make further changes as we go forward.

With that background, I will now review our current timetable for the study which has four phases. In Phase 1, which was our Options Analysis, we have completed that Phase during which we identified the demand and supply options and we characterized the options. We finished that in July of 1985.

In Phase 2, which is called Planned Analysis, that we are now going through the public consultation process that we described to you, and that our product, at the end of this year, will be a tentative resource development strategy.

We then proposed to proceed with Phase 3 called Planning Development, during which time we proposed further public consultation on our tentative Resource Development Strategy, and then we would appropriately modify the strategy based upon the inputs that we receive from the public. We hope to have the finished by mid next year, and then proceed with Phase 4 at which time we would have a government review and hopefully that we could end up with an Approved Resource Development Strategy in the latter part of 1987.

Turning next to Evaluation criteria. Specifically, we identified four major sets of evaluation criteria as follows:

1045

1. Each alternative program is evaluated for its technical acceptability and whether or not it will help to ensure electricity reliability.

2. Each alternative program is evaluated with regard to long-term customer cost, customer rates and financial soundness.

3. Each alternative is evaluated as it affects the socio-economic well-being of the Province of Ontario.

4. Each alternative is evaluated for planning flexibility considering the uncertainty of the future.

The trade-offs in selecting the best options and programs require both quantification and judgement. Public consultation and public surveys are important to developing recommendations.

Next, turning to Electricity Need. Claudette Mackay-Lassonde has discussed our bandwidth load forecast in Presentations 4 and 5.

Our load forecasts consider downward adjustments for improved electrical efficiency occurring naturally in the marketplace and efficiency improvements induced by Ontario Hydro.

Our load forecasts also consider upward adjustments through energy substitution and new competitive electrotechnology which induce prosperity and jobs in Ontario.

In these drafts, we have at the top, shown the total system annual energy, and in the lower graph, we have shown the annual peak power. And the solid line that you can see here is a very steady change in the amount of electrical energy. And, on the extreme right, is our load forecast expressed as a bandwidth showing the upper most likely and lower forecast.

We have made presentations to you comparing Ontario Hydro median forecasts with other median forecasts for Ontario. And you see on this upper chart here the location of Ontario Hydro showing a median forecast of 2.6% for the period 1985-2000 as compared with other forecasts. And on the lower chart we have a comparison of Ontario Hydro's forecasts, shown here second from the bottom, of 2.6%, and this compares with the other utilities across Canada with their forecasting their own system.

Now the last that we were looking at a couple of minutes ago, when looked at from the point of view of many decades, was the remarkably smooth curve, but if you put a magnifying glass and you look at the changes of the

curve from one year to the next, of course you see a very bumpy road when you put the magnifying glass on it. On the side here, we show the amount of energy that, into the amount of increased energy, in one year, relative to the amount of energy in the previous year. In other words, this graph is showing the increasing over the previous year. And so this goes back to the 1920s through to 1985 and you can see here that there was a steady trend upward, up until about 1973. And at that particular point, we went into a very unstable period following the oil shock, and between 1973 and 1983 that the world was somewhat topsyturvey.

And then, as indicated earlier this morning, during the last three years, following the 1982 recession, that is the years of 1983, 1984 and 1985, that three year period has been the all time high growth for Ontario. And, as Mr. Marriage indicated, the growth in those three years corresponded to approximately 60% of what all four Darlington units can produce.

1050

Now, what about the future demand? An example was presented to you on the way demand for electricity could grow between December 1985 and a future date of December 2004.

In this example here, Demand Management downward adjustments of 6.3 GW were made. This is equivalent to approximately three times the output from Niagara or three times the output from Lambton.

The required supply for December 2004, in this example, corresponding to this median forecast is 34.4 GW.

Now continuing with this example and looking at future supply, we indicated that we would need an additional 4.3 GW of economical supply. That is over and above the 6.3 GW that we put into the example that perhaps could be derived through Demand Management in Ontario and natural conservation.

This example serves to illustrate the urgent need for Ontario Hydro to study and implement new demand and supply options. Hence, we initiated this major Demand/Supply Options Study in 1984.

Now moving on to Part 3, I would like to discuss the demand options.

The goal of Demand Management is to provide the greatest net benefit to customers and the province.

Consider the following examples:

- An efficiency improvement to a heat pump will reduce the electricity needs for that one application, thereby reducing our supply requirements.

- This same efficiency improvement to a heat pump may improve its competitiveness with alternative energy thereby increasing the number of installations and in turn increase supply requirements.

- Where there is little competition with electricity, such as lighting and motors, efficiency improvements will lower supply requirements.

- New electrotechnology will increase the applications and jobs in Ontario and will increase electrical demand.

- Changing the time of use can reduce peak demand for electricity tending to increase the base load requirement.

Next, Demand Management - What is it? I have asked this question of many people who have strong opinions about the subject and I continue to be amazed with the different answers to my questions. I am not an expert, because I am not 70 kilometers away from my home, but one of my several duties--

Mr. Chairman: You have gone metric.

Mr. Haggerty: It is misleading, is it not. It used to be 30 miles.

Mr. McConnell: I will settle for 30 miles. However, that it so happens that there is an organization that you have heard of called the North American Electric Reliability Council, and that in that Council there is an organization of all of the planners in North America, and I happened to have had the assignment chairing all of those planners in North America for some years, and I can assure you when I make that statement that there is a lot of confusion; there is even confusion amongst the utilities on the subject of Demand Management.

1055

Nevertheless, I do have a large number of task forces reporting to me; one of it is dealing with Demand Management and it is not an easy thing to bring about a consensus amongst all the planning agencies in this continent.

Clearly, if we are going to quantify this subject we must have a clear idea of what we mean and what we are trying to achieve.

We in Ontario Hydro recognize that demand for electricity is determined largely by the electrical customers in Ontario.

We know that such consumption will be influenced by new competitive products, research and governments. Efficiency improvement is an intrinsic component of customer decisions, particularly large competitive industry.

Demand Management, as defined by Ontario Hydro, is "each and every activity undertaken by Hydro intended to influence the amount or timing of electricity consumption".

We can influence the amount by causing it to go up or to go down and we can influence in the time that it is consumed, the time of peak or in the valleys or on the shoulder.

To evaluate Demand Management options we have proposed that the following evaluation criteria be considered, and we have invited your views on these criteria.

In our presentations, we have developed a matrix chart. The components down the side of the chart are the various potential, strategic components that we could attempt to influence. And across the top, we illustrate the various ways in which one can go about implementing change, including research, education, promotion, incentives, public appeals, and mandatory actions. And so you see here that there are some 42 boxes of which we have got some nine that are not practical to consider, but that gives a wide range of consideration and illustrates the complexity of the whole task.

Now moving on to Efficiency Opportunities. Efficiency improvement opportunities exist in all of the electricity utilization sectors - residential, commercial and industrial.

Ontario Hydro's past experience described by Hedley Palmer is that practical implementation will be critically dependent on effective relations with customers and the Ontario municipal utilities.

Rick Flemming recognized our need to extend

and improve our data base to assist in indentifying improvement opportunities and assist in program implementation.

Hedley Palmer emphasized the importance of pilot and demonstration projects as an integral part of implementation.

We acknowledge the importance of commitment from the top of the organization down through the staff to achieve further efficiency improvements and exploitation of electrotechnology.

Demand Management cannot be organized and implemented in the same manner as large supply projects. Demand management programs and techniques need to be continuously adjusted as conditions change.

Dynamic programs are required because of the following:

- technology change;
- change in real price of electricity;
- change in the relative price of electricity, particularly with regard to gas; and
- customer behaviour.

1100

Electrical Efficiency Barriers: We must understand the barriers which impede or slow down the implementation of electrical efficiency improvements and develop approaches to overcome such barriers. Ontario Hydro is used to such challenges.

Ontario Hydro and other witnesses before this Committee have discussed barriers to implementation of electrical efficiency improvement.

The following are a few examples of such barriers:

- Customer lack of capital.
- Customer desire considering a short payback.
- Institutional conflict, and we mentioned earlier this morning the question of conflict between landlord and tenant motives.

- The customer unawareness of opportunities.
- Society resistance to change, and example being recent efforts on time of use rates.

Ontario Hydro and others have discussed the customer equity issue.

The "Non-Participant" test ensures customer equity. That is, no customer gets an incentive paid in part by other customers. This limits the amount of efficiency improvement which can be achieved.

The "Marginal Cost" test achieves maximum efficiency improvement in the Province, but requires some customers to pay for benefits to other customers.

We have asked for the views of this Committee on this issue, and Ontario Hydro has not yet taken a position.

The potential of Demand Management was discussed in our earlier Presentation No. 5.

Let us restate some of our findings to date:

- We identified a number of options to shift load from peak periods to off-peak periods or to interrupt loads at peak periods, through direct control by Ontario Hydro or indirectly through rates.

- We believe that the potential from these options will be larger than the system ability to accept and we should be able to make use of between 1000 MW and 1500 MW by the year 2000.

- The efficiency improvement expectation which is already included in the load forecast is 3000 MW, by the year 2000.

- And, the potential for further efficiency improvements induced by Ontario Hydro could range between 1000 MW and 4000 MW by the year 2000 depending on the level of incentives provided.

Our estimates, at this time, are uncertain and we shall be seeking accuracy improvement as our Demand Management program proceeds.

We acknowledge criticism by some that our expectations are too low and by others that our expectations are too high.

Before I move on from the topic of Demand

Management, I would like to make brief reference to the remarks made by Claudette Mackay-Lassonde when she talked to you about the development of load forecasting capabilities.

We have a number of initiatives underway to ensure that we provide good forecasts.

We are developing ways to examine the factors contributing to natural electrical efficiency improvement. We are continuing to develop our model capabilities and this includes improving our existing end-use model and making use of two new models ordered from the Electric Power Research Institute for the residential and commercial sectors.

Now, moving on to Part 4, having to do with the Supply Options.

Ontario Hydro is sometimes criticized as being a supply oriented utility. Indeed, it is the job of most of our employees to supply electricity. The Corporation is also serious about Demand Management.

Because we are serious about both, we launched the Demand/Supply Options Study and we are seeking views from the public, the legislature and the government.

It is our belief that Demand Management options are important to our future and it is our belief that Supply Options will be important to our future. We have presented quantitative evidence to you that we will need both.

1105

We have examined a wide range of supply options that might be appropriate for Ontario during the next two decades from 1985 to 2004.

We have characterized each of these options in terms of standard cost, reliability, time to acquire, and societal factors.

Societal factors include such things as environmental impact, safety, jobs in Ontario, energy renewability and energy abundance. We also consider whether resources are indigenous to Ontario or indigenous to the rest of Canada.

Primary Energy is the form of energy which is provided by nature to man. And there tends to be some confusion in terms of discussions that do not clearly

differentiate between primary energy, which is available to man, and secondary energy of which electricity is an example. And electricity, of course, must be derived from a primary energy of some type.

Now considering the energy that is available to Ontario, we have two major indigenous energies for Ontario: falling water or hydro, and we have an abundance supply of uranium.

From Quebec and Manitoba that we have the option of buying hydro electricity that has already been generated from falling water.

From Alberta and Saskatchewan, we have the option of buying uranium, coal, oil, gas and lignite, all forms of primary energy.

And, from the United States, we can buy coal..

Turning next to Energy Converters. In a utility, we are faced with deciding which of the primary energies we are going to use; what form of converter we will use to convert that primary energy into electricity energy, and, indeed, there are a great variety of different conversion processes. And when we hear the expression "cogenerator" we should clearly recognize that is not a form of energy, it is simply a machine for converting one form of energy into another form of energy, and that it happens in practice that the majority of cogenerators in North America, and particularly in the United States, burn gas and oil which we expect will become scarce in this coming century.

And so that in our Phase 1, we reviewed all the different forms of primary energies that are practical to Ontario; all of the different technologies, both existing and being developed, and that in order to produce electricity.

And, incidentally, there are two other forms of secondary energy; steam and hydrogen.

And, at this particular point, I acknowledge that we are not using very much dung in Ontario. And when I was chairing a recent meeting of our North American Electric Liability Council, that when the Californians referred to the fact that it took 3.1 cows per kilowatt, they referred to this as bovine biomass. And that the Texans, not to be outdone, said, no, that that was a wrong title, it was too damn fancy and they call it cow pie power.

To continue on with Unit Size. In our

studies we have also examined unit size, number of units per station and unit in-service intervals.

Larger unit sizes reduce the unit cost of electricity. Increased units per station reduce the unit cost of electricity. But, larger units and multi-unit stations tend to reduce the planning flexibility.

1110

Now let us consider electricity produced from hydro in Ontario. Undeveloped hydro power in Ontario is attractive because it is indigenous, it is renewable, it is reliable and well accepted.

Unfortunately there is a very limited amount of economic energy which remains to be developed. Most of the undeveloped potential is high cost and is located at a considerable distance from the load centres.

Now considering the purchase of electricity from adjacent provinces. Hydro power from Quebec and Manitoba can be obtained if a reasonable price can be negotiated. Negotiations are in progress.

Advantages include: renewability and the development of Canadian resources.

The disadvantages include: not indigenous to Ontario, the loss of jobs in Ontario and the short term availability that might come from these contracts, less than 30 years. It is not yet known whether price will be higher or lower than CANDU.

Now considering a few nuclear highlights. CANDU has an excellent track record in terms of cost, reliability and safety, and I was anticipating--if Mr. Sargent was here I would get a reaction out of him on that, but unfortunately he is not here.

Mr. Haggerty: He is listening though.

Mr. Ashe: That is a matter of opinion.

Mr. McConnell: Uranium exists in Ontario and is the only proven major economic abundant resource indigenous to Ontario for further development.

Ontario possesses complete technology and manufacturing capability. Some public concerns exist regarding safety and radio active waste disposal.

Now coal highlights. Coal is available from both the United States and western Canada.

Advantages of coal are: it is economic for peak load applications in Ontario and it is abundant.

The disadvantages include: it is not indigenous to Ontario; it is not economic for base load. Jobs outside Ontario and acid gas emissions.

The mothballed coal-fired stations, although not economic, offer flexibility to accommodate load forecast uncertainty.

We have made presentations to the Select Committee on solar energy and wind energy.

The advantages include: indigenous to Ontario; renewable and abundant to Ontario.

The disadvantages: high cost and large land use.

We will continue to study these alternatives and we will be using these alternatives in remote communities.

We also studied other energy forms such as solid waste, peat and wood.

I would like to now move on to closing remarks, Part 5.

In an earlier presentation we responded to 12 questions of this Select Committee. Ontario Hydro asked for your views on several issues and it will be helpful if we have your response.

Now, in closing, I think it is fair to say that we in Ontario Hydro have valued the views that the members of this Select Committee have expressed to us and also we learned in the process of the discussion that took place between yourselves and us and other witnesses. And that, as we have indicated to you before, that we would value also any collective views that this committee may express. And that if we get such views in the not too distant future they also, of course--that we can incorporate those in developing our tentative resources development strategy.

1115

And that I think it is fair to acknowledge that the information that was presented by other witnesses, we listened carefully to those views and that they were reviewed this morning with you by Ken Snelson, and that I think his presentation would serve to

acknowledge that we will also take those views into account in the formulation of an appropriate strategy for Ontario.

And that we hope also that the presentations that we have presented to you that there will be a better understanding of why we undertook this demand/supply option study and what we hope to achieve with the strategy when we have it developed. And that we hope that the presentations that we have made will convince you that demand and supply planning are important and in order for us all to mutually benefit by ensuring that we have a continuing reliable low cost electricity for this province.

I thank you,

Mr. Chairman: Thank you, Mr. McConnell.

Mr. Campbell.

A Speaker: Could we take a five minute break?

A Speaker: Mr. Campbell has 10 minutes and then maybe we can take a break.

Mr. Campbell: Mr. Chairman, members of the committee, I would like to thank you for giving Hydro the opportunity to present some information on our demand/supply study and for all the time you have spent considering issues involved in meeting our future electrical needs. It has been a long process. We welcome all the divergent views that this committee has given us the opportunity to hear.

I would like to conclude Hydro's appearance here with a few words about the study, a recap of where we are with it and what its important elements are and how we feel it will serve our customers. And I would like to stress where we see your input fitting into that overall plan.

Ontario is approaching a key decision period in its electrical energy planning and needs a clear director for the future. The demand/supply option study is intended to be a guide for electrical planning, a guide which will have a wide measure of support. We see this study not as a blueprint or a detailed plan in itself, but as a reference guide from which plans will evolve, plans that can be updated from time to time to reflect changes as circumstances dictate.

Our conclusions will form the basis for

decision-making that will start to take place, and perhaps as soon as a year and a half from now.

The demand/supply option study is a four phase project and it is a major undertaking. Two years ago we began a rough screening of all Ontario's potential demand and supply options, examining their characteristics, their costs, their environmental and social impacts, their potential contribution to meeting Ontario's electrical needs. There are, however, some things we do not know and we will continue to update and improve our knowledge in these areas. And we will try to keep you informed on those.

We have already heard about the public consultation program that Ontario Hydro has. We are now gathering input from customers, municipalities, community leaders, provincial interest groups and, of course, this committee. We will continue to gather opinions of Ontarians on their priorities and values. This will give us general direction on our approaches to the different options.

I emphasize that our appearance here is a major and valuable element in our public consultation process. We are anxious to receive your views as elected representatives who have a special interest in energy matters. This is very much a listening phase for us. Your views and those of the public are essential because government guidance and public acceptability are prerequisites to the future success of both demand and supply programs.

1120

We are working to incorporate these views into a tentative demand/supply development strategy, scheduled to be completed by the end of this year. We then intend to go back to the public with this draft and seek reaction to the proposal.

Now that should be stressed. Hydro recognizes that such major pieces of planning must enjoy government and public support. We have always tried to stay close to the needs of our customers. We are in contact with them every day. We are committed to customer satisfaction, to the well being of our individual customers and to the sum of all the parts, namely the collective prosperity of this province, Ontario.

As a public corporation Ontario Hydro has a special responsibility. Hydro is both a service industry and a manufacturer of a product. We are not only subject

to the dictates of the marketplace, we must remain mindful of our lasting commitment to low cost reliable service to our customers, our ability to contribute to job creation and to the future economic well being of the province. That commitment is something I consider very important.

We have already described our major largely unheralded past achievements in electrical efficiency. We intend to build on that tradition. In future years we will offer electricity customers some exciting new opportunities introducing into your homes and business electrical efficiencies in the form of improved processes, new equipment and imaginative energy use programs that will make life better, cutting fossil fuel consumption and changing the patterns of energy use. This will give the energy customer savings never before available.

These energy improvements will in some cases be the result of dramatic technological breakthroughs here and abroad and other efficiencies will result from the simple application of imagination and hard work on our part and the part of our customers.

Considering some of the barriers to electrical efficiency we have identified we must be realistic about the speed with which new efficiencies can be implemented. We will lead, compromise and support on matters like changes in rate design and patterns of electrical use. But the demand/supply option study will indicate our potential in these areas.

Our research has given us technological breakthroughs that can make changes for the better in Ontario's industries. I am convinced that electro technologies will have a very positive effect on Ontario's industrial production, making all kinds of industrial endeavours more competitive and more prosperous, safeguarding old jobs and creating new ones, creating wealth for Ontario and the country as a whole.

I would like to pause for a minute. The last time I was here I mentioned some of the new processes such as thermo mechanical pulping, which I am told is required in northern Ontario to safeguard our industry from foreign competition and competition from other provinces. Also the lower cost of oil promises, in the words of Data Resources Canada, in a report they released this week, "a super boom for Ontario" with real growth this year of 5.6%, 6.3% they are predicting next year and 4.8% in 1988. Now they have had to revise their forecast up by 25% to account for the drop in oil prices and they are calculating that this will add 370,000 jobs to

Ontario and Quebec in the next three years. That is over and above the jobs that were predicted at the rates of growth which previously were predicted in the 3.5% to 4.5% ranges.

Now this, I think, should make all of us reflect very seriously on the difficulty of the task facing us, and the seriousness of it, because in all of this growth, if we are to take advantage of it, reliability is something that must never be compromised.

We were told just recently by Honda--we are building a new plant there--that electrical service and reliability is one of the most important things to them, one of the reasons for locating here as a matter of fact. Because this surprised me, they told us if they lose power for one second that will destroy 70 cars on the production line. They will have to be scrapped because the robots, using electrical processes, will make it so that those cars have to be destroyed, those bodies.

So everything that we have done shows that--all the studies we have done show that our customers, both our industrial customers and our residential customers, will have no tolerance whatsoever for any decisions that will threaten the reliability of our service. And that is something I think we all have to keep in mind.

1125

To be competitive we should exploit our strengths. Our electricity rates are low compared to the United States. There is an advantage our foreign industrial customers and competitors do not have, but it is in our ability to maintain this advantage. It is within our hands. Our research will focus on exploitation of these opportunities. It is a perfect example of our efforts coinciding with customer needs, preferences and greater public good. Something that I know this committee, every member, is concerned about.

The demand/supply option study will give us the information we need to make rational decisions that would be in the best interests of our economic health and the prosperity of our people.

Choices among demand and supply options are not an either/or situation. The best choices will no doubt include both. We recognize that there is a genuine diversity of views among people of Ontario. Different people expect different things from us and some of their expectations are incompatible. It is likely we will never achieve unanimous support for any mix of energy

options, but we must eventually put some plans into action.

The demand/supply option study is an attempt to get input from all sectors to accommodate as many of these diverse views as possible, to give us the framework for reasonable and fair decision-making.

This committee is a manifestation of some of that diversity of option. These hearings have already provided us with a valuable opportunity to test our early tentative thoughts about these important questions. We have learned much from you as individuals. We are now eager to receive a response from this committee as a whole to the questions we put to you earlier.

It would be helpful to hear from you earlier rather than later. To learn your views by June would assist us in moving towards formulation of our tentative demand/supply development strategy which we would like to produce for the fall. We intend to take that tentative strategy back to the public for further comment early next year.

Now I am confident we have the resources, the expertise and the interest among citizens of this province to develop and implement an effective demand/supply strategy. The result of the combined efforts of all of us will be the production of a valuable strategy for future electrical planning in the Province of Ontario.

I would just like to add, Mr. Chairman, one comment before I leave and that is that in all our supply/demand forecasts that we have put before you today we have indicated a range, low ranges, middle ranges and high ranges and we have been working on those for the past two years. I think events this year, in 1986, have indicated that if we are at risk in the next few years it would be at that high side, at the high end of those projections, and that--I refer you again to the Data Resources study that was published this week. And we took the liberty of checking that out with some of the leading Canadian investment dealers just this week and, in fact, with officials in the Ontario government, in treasury and economics, and there tends to be a consensus that the growth in Ontario is going to be higher than predicted because of the drop in oil prices. It is having an unfortunate adverse effect on places like Sault Ste. Marie because the mill there was specializing in production of drilling pipe and pipeline for the west and that has, unfortunately, been hurt by low oil prices.

But the general predictions that we are

seeing are that that kind of localized misfortune is going to be more than made up for by a spur to the economy, and particularly, as I say, not in our words but in the words of Data Resources Incorporated, which is a pretty widely used base, that Ontario and Quebec are likely in for what is called a super boom in the next three years. And so I leave that thought with you, Mr. Chairman.

Thank you very much for all your time and attention.

Mr. Chairman: Thank you, Mr. Campbell.

We are going to take a five minute break before we start the questions.

The committee recessed at 11:29 a.m.

The committee resumed at 11:37 a.m. in committee room 2.

Mr. Chairman: Mr. Campbell, I understand you have some time constraints so...

Mr. Campbell: I am supposed to speak to a luncheon of the major power consumers, but that would not be until after one so I...

Mr. Chairman: Perhaps I could ask the members of the committee if they have specific questions for Mr. Campbell. We will start in that direction and...

Mr. Campbell: Thank you.

Mr. Chairman: ...if they want to keep the other question until later, that would be fine.

The members of the committee, Mr. Shymko, Mr. Charlton, Mr. Ashe.

Go ahead, Mr. Shymko.

Mr. Shymko: Mr. Campbell, I think this exercise is something that has great positive value, I am sure, to Hydro and to all concerned because the publicity and the educational aspect of this. And the public input, hopefully is going out there from the deliberations we have been having.

My interest is the whole area of public participation and input. We have heard some interesting suggestings of what is happening south of the border, both from officially very structured public input into the whole process of planning. Obviously the situation is quite different from the private utilities in the States and the public ones here.

1140

But I gather from some of the comments you have made, and your staff, that you are open for some flexibility in greater public input...

Mr. Campbell: Yes.

My Shymko: ...beyond the Legislative Committee type of forum of public responsibility and public input. My concern is that the major industrial users, AMPCO, have unofficially, although it is not legislatively structured, representing some 80% of the consumers and customers of Hydro have been having a sort of a major consultative impact throughout the stages of

planning in an ex officio type of way.

What do we do with the consumers who are not major industrial users? I am talking about the residential consumers or others who seem to have the impression--and I think politics is perception more than reality, unfortunately. And there is a perception out that that, you know, the average residential user or customer does not have an input into the planning process of Hydro, notwithstanding our definition of politicians as defending the public interest, et cetera, et cetera.

Can you comment on some of the suggestions or things that are happening south of the border, be it a public ombudsman or something who would represent that input into the process?

Mr. Campbell: Well, first of all I should say, in answer to your earlier question, that we are certainly open to public input. We want to encourage it. We do deal with a lot of different groups. You mentioned AMPCO which represents the largest group of our industrial customers. We also deals with groups such as the Consumers Association who purport to speak for a lot of residential customers, and do speak for them, I am sure. We have been having our own open houses and meetings around the province and I have attended them, the president, our senior people have tried to get around the province and attend public meetings where we talk about these issues. And we have quite an elaborate schedule of those meetings for the rest of this and into next year as well. So we are doing a lot of that. But we are always welcome for new input. As you suggest, if there are other models we are prepared to look at them.

One of things I guess I could mentioned is that we have heard suggestions that--you mentioned an ombudsman or a citizen's committee to oversee it. One of the things that we believe is that Ontario Hydro being a public agency not a private agency as is mostly the case in the United States, the government appoints the Hydro board and really the Hydro board represents quite a cross section. So it is really a citizen's board that runs Hydro. And believe me they do run Hydro. In fact, one of our board members is just retiring after serving three terms with distinction, and there is a rule that you can only have three terms and you have to be replaced.

And he said to me that one of the things--and this is a chap who is on a number of boards. He is a businessman, a very well known businessman in Canada. He said he is on a number of boards in the private sector. Hydro board was a favourite board that he was on and the reason for that is that the Hydro board really made the

decision and ran Hydro. And he said that he had the impression that in many of the private sector boards that he sat on that the board was more of a rubber stamp for management. And so I just took that as a compliment. I thought that was a very good assessment. And that was one. And that is somebody who is leaving the board. And so we try to emphasize to all our people that they are servants of the people, that we have to listen to our public in every form.

And, I think in this day and age, another way to find out what your customers are thinking is to do surveys. I know that is sometimes a little bit questions and government are opposed of just what value surveys are. But we think that in an industry such as this if we are expecting customers to, say, take advantage of more efficient programs and that kind of thing. If we are testing or what kind of incentives we should have to make them use electricity more efficiently it was quite valid to do some market research and see what they do. And we are doing that and we are finding some interesting results. And those are the kinds of things that we would like to share with the public and with the committee at sometime.

1145

Mr. Shymko: You would not have any problems with a legislatively structured sort of input from the public, including the major industrial users, you know, that would be legislated and mandated in an Act, including the comments from the Chairman of the Ontario Energy Board with relationship to funding authority that he made comments or alluded to.

Mr. Campbell: Well, I think where I would exercise some caution on that is that we are controlled very carefully by the government already. And the government is responsible to the people through election. For example, we cannot build a power line. We cannot buy a pound of steel for a new power line without an Order-in-council approval of that line. We cannot build a station. We cannot borrow a dollar of money. So the government has absolute control over every significant step we take already.

Mr. Haggerty: You are saying you have to justify the need then. Is that it?

Mr. Campbell: That is right.

And we talk to the Minister of Energy and the Treasurer and his people on virtually a daily basis. And the Hydro board was set up, in fact, to actually

implement under the direction of the government.

I think what you would want to consider is if you set up too many legislative controls that you could make the process grind to a halt. And I cite the example we are having with getting a transmission line. We have been trying to get a transmission line for 14 years and we are still no closer today. And I think that is a very, very important situation for the people of Ontario because it is costing us hundreds of millions of dollars of wasted money.

Mr. Shymko: If you were to convince the public--see, the perception of public versus government, you know, perhaps government would react to the importance of that transmission line.

What I am trying to say is there is still--although you are constrained and regulated by government the perception out there is that government is not the public, unfortunately. Sometimes in some issues, be it the nuclear waste management areas, you know, people feel frustration that, you know, they do not have an input. There are fears and they cannot express it, I mean the various lobby groups. So your definition of your constraint already and the Order-in-Councils and certainly the Cabinet has rigid control over you. I just wonder. My question is basically from the public in a different definition of what I mean by public. Sometimes a party will provide that definition as, you know, as the whole dichotomy between what we perceive and what in reality exists.

Mr. Campbell: Well I guess I would go back to the Hydro board as a safeguard of the public because Hydro is not run by its management, it is run by a Hydro Board which is appointed by the government and they are private citizens from all walks of life and all geographic regions. And they are there to represent the public. And so that is a very, very important--if you are looking for checks and balances in the system, that is a very important check and balance in the system.

Now you could go on appointing boards and you could say well, the government appoints that board, but we do not really have confidence in them so we will appoint another board to be a watchdog on that board. But I do not know how far you could go on that.

Mr. Haggerty: How independent is the board then from the government in the sense of say that the government appoints the board members there? There is some influence there right from the start. But when does the independence come then that the board can make the

decision themselves or, in the past has it been the government leading Hydro in areas of nuclear development or has it been...

Mr. Campbell: The board has responsibility under the Act for the day to day operations of Hydro. However the legal framework that sets up Hydro also provides that the government can give the Hydro board policy direction, and it has done that from time to time. And, as I say, for example, every time we borrow a dollar it requires government approval. Every time we build a line, do anything major it requires specific government approval. So the government has a very strong reasons.

1150

Now, in practice they were told, I would assume, that the Hydro board, which are composed of some very outstanding people. We have a president of one of Canada's leading banks as Vice-Chairman of the board. We have people very knowledgeable from the academic community, from a number of different walks of life are on the board.

I would assume that the government would hope, in the normal course of events, those people would exercise their authority and act in the best interests of customers, the public, as well as the Hydro management. And so I would think that governments would expect that they would not have to intervene a lot. If they had to I suppose they should consider making it a ministry of the government. That is another model that could followed. You could find many countries where that is the case. It is a ministry of the government. Just about any function that you can find done by a Crown corporation you could find some where it done by--for example, in Alberta there is something called Alberta Government Telephones and there is a Minister of Telephones. We think that is very strange but Alberta is...

So there are various models you could have if you wanted, depending on what kind of control you want. But I am saying is the mechanisms now do provide very good public checks and balances on Hydro and I would caution about introducing other kinds of legal impediments, because I point to the problem of transmission lines. That is a serious, serious problem for everybody. It is not just a Hydro problem, it is a problem for everybody in Ontario because that process has cost the customers literally hundreds of millions of dollars.

Mr. Charlton: Just before we leave it here, because I think it is an important question and I think

the presenters we had, other than Hydro, on the question of control and checks and balances fairly presented those controls that do exist, the financial controls, the approval controls for construction and so and so forth.

Mr. Campbell: The public hearings we have.

Mr. Charlton: Right. But one of the aspects which has been, I think, the focus of the criticism of the present control mechanisms is the question of information, of data base or, in other words, of the governments, the ministry of energies, the public's ability to challenge Hydro's studies, Hydro's proposals, Hydro's claims for the needs of the system. And all of the checks and balances that you have described mean very little if that information and data based ability to challenge or to question what you are being told is inadequate. I think you understand what I am saying. If somebody starts a rumour in my neighbourhood that there is a rapist running loose and that three women have been attacked in the last two weeks, the community is going to respond to that information until they have information to the contrary to challenge that assertion. And if government, if the Ministry of Energy and the public at large are not in a position to question what they are being told by Hydro, how effective then are the checks and balances. And I think that is the question which has been put to the committee which we have to try and respond to.

Mr. Campbell: Well, I guess in response to that I would say that the government, in every major policy initiative we take the government has to be satisfied in its own mind that that is appropriate. And to this day that has been the case. For example, I think you have heard testimony last fall from Treasury and Economics on the financial side. And as you have mentioned, there had been lots of stories circulating around that somehow Hydro was out of control, threatening to bankrupt the province, taking money away from other programs of health and education, and that kind of thing. Well, when you heard the people from Treasury and Economics they did not say that. They said that in fact they were in daily contact with Hydro, that the finances were sound, the stock market and credit rating agencies were not concerned about Hydro. They felt the debt was well managed and well under control. And so that is the reality.

1155

Now the people in Treasury are probably some of the most competent people in Canada to speak on this issue, very competent people over there. And they

certainly do not contradict the company here under you--that on the financial side that was the case.

In the terms of the physical plant, for example, we will go back to the transmission line. One of the things we have to demonstrate to the public is the need for, say, a line. And I am saying with the system we have right now, if anything, I would say it was too much input for the public interest because anything that takes you 14 years, and we are still no closer to getting that line, and it is going to 17 years, minimum, before that line goes through.

Mr. Charlton: Yes, but let us not blame all of that on the public control mechanisms which did not start to operate until 1982.

Mr. Campbell: Well, the Royal Commission in 1980 said that it would be indefensible if that power were locked in. So the public process had lots of warning. But right now, today, we have locked in power at Bruce and it is costing us millions and millions and hundreds of dollars.

Mr. Charlton: No, but there is a point here, Mr. Campbell. I do not think this committee wants to condone a 17 to 20 year approval process.

Mr. Campbell: If it wanted to help...

Mr. Chalton: But it was 1982 when Ontario Hydro took the proposal to the public process, not 1972, 1982.

Mr. Campbell: But if you wanted to helpful to, I think, the public I think that might be an interesting area for the committee to examine, to look at the approval process we have now before embarking onto redesigning some processes. I think it would be very instructive to go through and we will take you through...

Mr. Charlton: I think we will have some comments on that.

Mr. Campbell: We could take you right back to 1968.

Mr. Charlton: I think it is fair to put those comments in perspective in terms of I do not think any of us like, as I said, a 17 to 20 year approval process. But to blame that totally on the public checks and balances that are in place at this point is unfair.

Mr. Campbell: All right. It may be unfair,

but what I am saying, what I urge on the committee is I presume you want to make decisions on the basis of the facts and not on the basis of preconceived notions. I would urge you to examine carefully the system of approvals and public hearings, the checks and balances we have in place now before you gave any thought to redesigning the system. Because you could end up, you could end up with making the economy grind to a half. You could end up. And I submit that there is evidence of that and I would like you to look at that. That is, perhaps, the most serious problem we are facing right now is that fact that with the regulation process in place it is just not working.

And I have had a long career in the public service, 25 years service in Ontario this year. I am going to be retiring and I do not expect to see that line built. So it is going to be somebody else's problem. But I am telling you that kind of thing is a serious problem that we should be addressing.

Mr. Chalton: We do also though, as I have suggested, have to address the question of why the proposal from Hydro for those lines did not get into the public process until 1982.

Mr. Campbell: It is a good area to investigate. But what I am saying is, please do not redesign the system before re-examining what is in place now.

Mr. McGuigan: A supplementary on the organization. Do members serve at pleasure?

Mr. Campbell: No, they are appointed for fixed terms.

Mr. Shymko: It is a fixed pleasure.

Mr. Campbell: Their terms have been staggered so that each year there are a number of vacancies occur on the board. So, for example, the new government will be appointing a new member of the Hydro board effective May 1.

Mr. McGuigan: The reason I asked that question, it gives you a lot more independence to be put on for fixed terms rather than be on there for pleasure.

Mr. Campbell: Yes, but the terms are relatively short. Members of the board are three years, and some of them have been appointed--because they like to stagger them some are appointed for two years and some of them are only appointed for one year. So there is a

turnover. So, for example, it is relatively easy for the government to, after a period of a relatively short number of years, could completely change the membership of the board if it was not happy with the way things were going.

1200

Mr. McGuigan: If there is a maverick you can soon get rid of him.

Mr. Shymko: If I could conclude, Mr. Chairman, with my last question. The only thing we have similar to a sort of a public advocates office in Ontario is the Office of the Ombudsman. My understanding is that the ombudsman jurisdiction does not include Hydro and never has. Presently the ombudsman is looking into the whole area and maybe making recommendations that municipalities and municipal boards and agencies be included under his jurisdiction. This would include the municipal hydro boards.

Now, it does not make any sense to me if that expansion of jurisdiction would go into that area, including the municipal hydro boards, and not have jurisdiction over the provincial hydro. What is your...

Mr. Campbell: I appreciate there is some legal question, but I will tell you what--and I cannot answer for the history there. I can tell you what my policy has been as Chairman of Hydro in the last two years and that is that to accept the jurisdiction of the ombudsman and to work with him--and in fact I have met with him on three different occasions on different cases and I think we have managed to sort out those cases. I think we had some legal opinion, for example, in a couple of areas where we had a court case underway, where someone was suing us. And I think in cases like that we interpret--the legal advice we had was that those things before the court had to run their course before the ombudsman could get into it. And so we had some differences on technical legal grounds, but in the principles I tend to agree with you. And, in fact, we have been--whether it is legal or not we are not standing on ceremony, we are working with the ombudsman.

Mr. Haggerty: Building another empire.

Mr. Shymko: In other words you have no objections to that jurisdiction including Hydro?

Mr. Campbell: Well, I think if it is not--well, we are already doing that.

Mr. Shymko: Okay. Thank you.

Thank you.

Mr. Chairman: Thank you, Mr. Shymko.

Mr. Charlton.

Mr. Charleton: Thank you, Mr. Chairman.

I have a number of questions and I would like to move right back to Mr. Snelson's presentation at the start of the morning and deal with a couple of issues that arose within that presentation.

And I think the committee in general--and I think that became very clear during our in camera session yesterday--in general are very aware of both the divergence of opinion, but the inability to agree among a number of advocates about some of the subjects that you presented to us this morning, and the range of support for our opposition to certain aspects of that. I do not think the committee is at all unaware of that.

I think where we have difficulty, or at least where some of us have difficulty is, for example, the kinds of things you have set out on demand issues on pages 7 and 8 and 9 where, for example, in the second paragraph on page 8 you have said: "The conclusion of Dr. Rosenfeld and others is that the surplus is expected to last to 1995. Now is not too soon to start." referring to starting to look at what you do beyond the surplus. And you have said that this is the same conclusion that Mr. McConnel came to, and this is in reference to looking in a new way at the demand side options.

And I think the third paragraph on page 9 is where the committee starts to have trouble. If you compare the third paragraph on page 9 with the paragraph that is right at the top of page 8 where you clearly set out some of the difficulties with moving into a new area, looking at demand side options in a very concrete way, you set out very clearly for us that there are some problems there. There are some timeframes that have to be accomplished. There are some resource needs in order to accomplish those timeframes. And I guess where some of us start to have trouble is--and I go back to the questioning we did of Hydro and Hydro staff in terms of the resources that have been committed on that side.

1205

And I guess what that says to me and what

that says to some of the members of the committee at least is that it raises the question or the skepticism about the real commitment to the demand side and it, from our perspective, just adds considerable time to the kinds of timeframes that you pointed out to us here, that other presenters pointed out to us, that if you need a 10 year timeframe to look at something when you have committed major resources to it how long is it going to take us to look at it if we have not committed any resources, if we have got six people working on it instead of 700 or 2,500 or whatever the other examples happen to have been.

I think that is one of the major concerns, and perhaps you could respond in terms of Hydro's plans to expand the commitment in terms of realistically looking at demand side options.

Mr. Snelson: Okay. I think the idea here of the lead time is the time required to both do the market research development, market research sort of demonstration programs and to build the resources and that is one of the decisions that we are looking at. And now is the time to look at it, 10 years before it is required, not the year before it is required.

Mr. Charlton: I understand that. But again, we have this commitment of staff. Is Hydro going to do all of this looking through consultants or are we going to see a substantial expansion in terms of the staff commitments to the demand side questions?

Mr. Snelson: Mr. Palmer's division has got programs in the formative stage to undertake further market development demonstration programs in this area and maybe he would like to comment on his plans.

Mr. Palmer: Timing is a factor here, Mr. Charlton, as well as other just having the resources available. Take the time of use experiment that we are moving ahead with, one does not need great numbers of people or resources to conduct that experiment and doubling the number of people or the resources will not give us any more information than we are getting now off the experiment because customers who are on the experiment respond over a number of years and we study the effects. So that after five or six years we are able to analyze the results and make some reasonable predictions about the place of time of use rates as a factor in demand management.

We spent five years in a pilot study on load management in Scarborough and Oshawa. Again, covering more customers we could not have cut it down to one year. So you have a question of timing to consider.

You can run more different kinds of experiments simultaneously with more resources, but you always have to contend with a timeframe. And it would be my very personal observation, because I spend a great deal of time with various U.S. utility organizations, that there have been several deficiencies so far that are endemic to their processes. One was inadequate prior research, inadequate study of consumers reactions to programs, inadequate cost benefit studies done to tell whether there was really a true benefit. Their programs have been more aimed at, go out and spend considerable money and see whether it does any good or not.

I think we want to use the time to study these questions rather thoroughly and then make the best use of the U.S. experience and our own in putting programs out on the street.

Mr. Charlton: You have described for me exactly the problem I am expressing, you know. Your staff told us clearly three weeks ago that you do not have the data base you need. You have described for us a number of the specific areas where you are looking to improve that data base. We though, okay, well maybe the Ministry of Energy is doing some of the stuff that Hydro is not doing. So we questioned Ministry of Energy staff along the same lines and they described for us three or four specific studies they are doing. But in the context of what your staff told us about the lack of overall end use data that they do not have that they do need to evaluate some of these things that you are talking about so that on the one hand we can know what is out there, on the other hand we can better target some of these experiments and demonstrations that we do, and so on and so forth, but nobody has yet, after all this discussion, doing that major demand management study, the end use study that does not exist in this province.

1210

Everybody tells us that we cannot properly evaluate this, that or the other thing because we do not have the data, and I do not see anybody responding to that. I cannot get Hydro to tell me that they are, within the next year or so, going to commence a major end use study in this province. I cannot get the ministry to tell me that. I cannot get anybody to tell me that.

Mr. Palmer: Well, let me come back to the timing issue again, because I think that is critical. Let me refer once again to the time of use experiment. It is not just a question of resources. The data base is not accumulated instantly because we hire 10,000 people to

accumulate a data base. There is a question of timing and all the other things that go with it.

Mr. Charlton: The sooner we start the sooner it is done.

Mr. Palmer: Exactly. And I think I could use more resources in this area. But senior management in the corporation has to ration their resources over all the things that money has to be spent on year by year in order to keep the rates at a reasonable level and those are major considerations for our senior management, is how the resources are to be allocated.

I also cannot stand if someone says to me tomorrow you need 100 more people. I have got to hire those people, where, I am not quite sure because it is a new area. They have got to receive training. Space has to be found for them and so on. So I think our pace could be accelerated, if that is what you are asking me.

Mr. Charlton: M'hm.

Mr. Palmer: But I do not think it can be trebled or quadrupled in that kind of measurement.

Mr. Charlton: Well again, there is two things. One, I guess, is, as you put it, accelerating the rate at which you identify these things, but the other is this outstanding question of data which some of your staff have clearly told us they need if they are going to be able to evaluate certain things, and if that data base is inadequate--we can see certain aspects of that happening but we do not see all of it happening in terms of data collection.

Mr. Palmer: Okay. Let me draw attention to the interrogatory we responded to. And you will note the staff decisions in our marketing operation increased in 1984 from 718 to a projected 900 in 1987. A significant number of roles coming into the area in which I am in charge for the kinds of study and work that we are talking about right here, not all of them but a good number.

Mr. Charlton: Will we end up with a thorough and complete energy end use study of the Province of Ontario?

Mr. Snelson: Can I respond to that?

Mr. Charlton: Yes.

Mr. Snelson: I think that there is a

misunderstanding here of the sort of data that is required and the sort of data that it is practical to acquire. Mr. Duncan Allan clearly pointed out the problems of grandiose studies that try to look at the whole world before they make any decisions. And he pointed that by the time you have done the study the study is out of date anyway if you tried to do too much all at once and wait for it.

The way you actually operate in this sort of area to go after pieces of the information one at a time, make incremental decisions as you go along with the best information you have got at the time. And we have told you that some of the areas where we are making very distinct efforts to obtain those pieces of information that we feel are most lacking.

For instance, we have five consultant studies going on in the industrial area, which is one of the areas of greatest uncertainty. We are employing Mr. Tamblin and his people to do better studies and more thorough studies of the conservation potential in the commercial sector. So we are going after the pieces of this information where we see the biggest shortages at the moment. And you do not have to wait until you have looked at the whole picture before you decide to do something somewhere.

1215

Mr. Charlton: I am not suggesting that we should wait.

Mr. Snelson: No.

Mr. Charlton: I am suggesting that ultimately we need that total data base.

Mr. Snelson: Well, total data base, it never exists because by the time you have collected the last piece of information then your first piece is out of date. And it is like the people who are painting the fourth railway bridge across the estuary near Edinburgh. They have a permanent job. They start at one end and they get to the other end, and by the time they get to the other end the paint is falling off where they started.

Mr. Charlton: Well, that is all very well and good and that is all very true, but I would like to point out to you that when you decide to build a modular home you cannot put up the targetted pieces if the foundation is not all in and that yes, if you do a major end use study some of the data may be out of date by the

time you get the whole thing finished but you have got a foundation there then from which to work instead of zero.

Mr. McConnell: Mr. Charlton, let me add something to the response that you receive. I believe one of the earlier people here, a witness, talked about ready, fire and then aim. And basically we put a lot of emphasis in our presentations to you that we have already started. And we said, if you are going to--and of course we have outlined demand management activities that have been in place over the century and of course that what we are specifically talking about now is an increased intensity having to do with incentives that influence people's decisions. And that we emphasize that if you, in fact, are embarking on a new thrust that we are talking about putting our strategy in place first.- We are talking about finding out how the people of this province feel, how the industry feels, how John Q. Public feels. And we are in that process and we described it to you. And that means that basically strategy comes first for a basic plan.

Mr. Charlton: And it seems to me, and this is the point I am trying to make, is that end use data is part of strategy development.

Mr. McConnell: Well, let me finish. Now, when in fact that you know where you stand with regard to public acceptance and government acceptance that you in sequence then have to develop programs that are going to be effective to execute that strategy. And that in order to have programs--Mr. Palmer has described to you the fact that if you are going to in fact aim before you fire that you have to have sufficient and specific evidence of where, in fact, that a program is going to be effective. You have to identify in definitive terms where your opportunities are. And in our presentation this morning we described that process having to do with the identification of opportunities and the practical identification of how you are going to proceed. And Hedley has described that this needs such things as demonstrations that will, in fact, lead to a practical understanding of what you can do.

Now, as far as data base is concerned, if you are wondering do we know how many electric houses, and that sort of thing, that are in place in the province, the answer is yes. But this morning we indicated to you if you asked us do we know exactly what houses have exactly what insulation in them then that becomes another question. For example, we have identified a potential opportunity that we know that industry has processes in place throughout the province that use large motors. Now, we know that some of these run at constant

speed and they are not throttled but we know that some of the others in fact have throttling devices in them. We also know there is a new technology where we could introduce variable speed motors, alternating current motors. And it is not enough to know how many motors are there and how much power they are driving. That basically means that that is an agonizing data process to go out there and find out what the real potential is before you embark on a half cocked program to find out whether in fact that these are economic opportunities or whether it is just a new installation that you want to put variable speed motors on.

And in terms of customer research that Hedley referred to you have to examine those opportunities. Whereas the strategy is proceeding, and we have indicated to you when we hope to have it in place by the end of next year, we have already jumped the gun and started moving on futhering the data base. And those pilot programs are already underway, as Hedley has described.

1220

Now thirdly, once you have decided what your strategy is and once you have identified what your program opportunities are and you are going to implement them, it is at that point that you, in fact, expand the number of employees that you have got to help deliver the program. And it is at that point that you need the larger resources. You do not want to go off half cocked.

Mr. Charlton: Okay. So that answers the question that I originally asked...

Mr. McConnell: People that are hanging around all over the place not doing something useful.

Mr. Charlton: ...which is when can we expect to see Hydro making those kinds of commitments. You are saying that when you have got the plan in place in 1987 is when you will make the decisions about expanding that side of Hydro's staff resources commitments.

Mr. McConnell: When we have the strategy in place in 1987, after that.

Mr. Charlton: Okay. That is the question I originally asked and now I have got the answer. Now we can move on.

I think this next question flows out of the question that I just asked and it is--again, I am referring to Mr. Snelson's presentation and to the first paragraph on page 13.

Mr. Chairman: Mr. Charlton, I do not want to interrupt your train of thought, but I remind you that we were trying to focus on Mr. Campbell's question prior to his departure.

Mr. Charlton: I understand that. I think, though, the important thing to the committee is for the committee to ask the questions that it ultimately wants to ask.

Mr. Ashe: Surely the idea behind that, though, was that if there was others we could go around again, type of thing.

Mr. Charlton: All right. If that is important to others then I am prepared to step aside well others ask Mr. Campbell questions so that he can go and then I will continue. Is that fair?

Mr. Chairman: Yes.

Mr. Charlton: Well, my question for you is somewhat dependent on the answers I get to the other questions, so it is...

A Speaker: That is why he is leaving.

Mr. Chairman: Keeping that in mind can we move to Mr. McGuigan quickly, Mr. Ahse and Mr. Haggerty.

Mr. McGuigan: Thank you, Mr. Chairman.

I think we all agree that there are part of the things to the economy, if we can say waste. And one of the wasteful things that has been presented to us is the apartment building that had no incentive for the tenants to save electricity. And I have had some experience with tenants because I managed a number of homes for a few years and I know that there are problems with having separate bills. You end up sometimes with people paying their rent but they do not pay the hydro. And then a few days down the road Hydro is there threatening to cut off the hydro and you get into all sorts of problems that can better be solved by having one payment because people tend to make the one payment and they will not make three payments.

But nevertheless, we need to attack this issue and it seems to me the worst way to attack it is by mandates saying buildings have to be operated in such a manner. And there was a view expressed by the Energy Pro people that I thought was pretty good. And that was, their view was that you put hydro on the same basis as natural gas utilities, pay interest or do it back to the

owners. And you simply get rid of the so-called subsidies that they talk about in the system. You go to a market price and then you allow the market to make those decisions themselves. I just wonder what your sort of reaction would be to that sort of a theory. It is a fundamental change in the way you operate, but it would also be a fundamental change for Ontario to mandate buildings to be made and landlords to operate in a certain way. You have sort of got the question of if you are going to accomplish conservation which of those two options do you think might be the...

1225

Mr. Campbell: Well, Mr. Chairman, if I can answer that briefly. We are very much in favour of more efficient energy use and Mr. McGuigan pointed out a very good example. A lot of commercial apartment buildings could improve their energy use. Now, increasing prices have been an incentive for that and I think we could give you lots of examples where we are working with commercial users to greatly reduce their energy costs. So that is a high priority with us.

Having said that, I think that some of the evidence that the committee has heard from other jurisdictions may indicate that there are easier gains to be made than we have here. For example, I was looking at the testimony from people from the west coast, U.S. west coast. Well, I was educated out in the west coast Canada, in British Columbia, and that was a long time ago. It was in the 1950s. And I remember that a house at that time cost about half of Ontario. One of the reasons it cost half it had no--it was a typical house on Vancouver Island. It had no furnace and it was put out of B.C. lumber and no insulation and no storm windows. And electric heat at that time, because it was the cheapest form. And that was true in British Columbia. And it was more true the further south you got. So if you went into Washington State, where I used to go down to ski, or down to Oregon and California, it had no insulation, no storm windows, nothing like that.

Now then the American utilities encouraged electric heating with no standards for insulation. That never happened here. We had always standards for electrically heated. And then it increased over the years. And so we already have in Canada a very, very high level of building efficiency. And, of course, utilities who have neglected that in the past--and that is by and large true for the United States, and especially for the west coast. You do not come in and say, hey, we have this wonderful new program of efficiency and you had better learn from it. Well, we

did that stuff 20 years ago, 25 years ago.

And so what I am saying is--I am not putting that down. It is important stuff, but it indicates that the experience in one area does not necessary apply to another area.

But, as Mr. McGuigan pointed out, some of the commercial areas are probably--most of them, I think most Canadians have their houses pretty well insulated and the fact--maybe if their problems that are emerging now are that some of them are too well sealed and they are getting problems with air quality and rate on gas and all sorts of stuff, formaldehyde stuff. But commercially no question.

Now to deal with the problem of the suggestions made that the way to force people to introduce efficiency is to jack the prices way up, through taxation or whatever. I reject that and I believe that our customers, industrial and residential/commercial, over 90% would reject that gladly out of hand. They would say, we are all for efficiency but we have to have a choice and do not impose it on us. Because by doing that you are really using a sledge hammer to hit a tack because the higher cost of electricity would be so damaging to our industries, and would create such unemployment here if some of those schemes were carried out of adding, we have heard as much as 65% of the cost of electricity, you just ask any businessman in your area what that would do. And what we hear, and we have this from customers is most of them say it would put us out of business. So yes, we would not have to worry about growth because we would not have it. We would not have any employment. So we would categorically reject the idea of taxing electricity. I think it has--it has not been thought through. It would be turning our back on 80 years of policy that has made Ontario the industrial centre of Canada if we started tactics like that.

The whole reason for forming Hydro as a public corporation was to get away from that, to have power at cost. And that has been what has build the strength that has built Ontario, the Ontario economy. And I think it would be very ill advised to turn our back on that policy.

1230

Mr. McGuigan: The apartment I live in here in Toronto was built in, I think, about 1977. It is the old Eaton's store so it is not too long ago that it was built. But the whole frontage, the two rooms that face

outside are glass, the entire distance, and single glass too. And if you turn the heat off in that place in the wintertime, you know, just in minutes it is cold. So it cannot be very, very efficient even though it is built just in the last few years. How would you come to these people to induce them efficiency if we are not going to do it by price?

Mr. Campbell: Well, we think at the prices that we have today there are strong incentives for owners of commercial properties that are really concerned about their balance sheet should be looking at greater efficiencies, and we have the technical people and we will test for airtightness and that kind of thing, we will give them an efficiency reading and we will show them how to use things like better insulation, better windows, better heat pumps, that kind of thing, that they can achieve very, very high efficiencies. But what we are told is that is fine. That is the way we like it, but do not try and impose it on us.

Mr. Palmer: Mr. McGuigan, I do not think this is a totally disparaging situation in Ontario. There has been an increasing trend, going back to the 1960s, of improved levels of insulation in residential and commercial buildings. And while not every building that is built is as good as we would hope it would be as citizens that the numbers of buildings being constructed today on a comparative basis set a very high standard across North America.

And those buildings in which Hydro becomes involved, in use of heat pumps and so on, certainly a major component in our discussions with the developer and the consulting engineers in the adequate use of insulation techniques. We have been known to back away from buildings where we were unable to convince the developer of what we thought was appropriate and adequate for an efficient building.

Mr. McGuigan: I have insulated my own homes and other buildings that I look after and it kind of bothers me that in the building in downtown Toronto, for which the government pays the rent--it does not cost me anything, the government pays the rent. But I suppose most of the people living in those type of apartments pass it on, either to the government or to a company, so it does not affect them. There is a particular block of energy that I think is being, you know, badly wasted to the detriment of Ontario's economy because this eventually gets passed through to the customers of our products, whether it is wood or whatever, you know.

Mr. Palmer: Well, I think I agree with your

point. I just wanted to comment it is not all negative. The standard generally is becoming quite high.

Mr. Campbell: And we favour that. I do not want to give any wrong impression. We certainly favour more efficient use of that and I think you can look for us to increase our public awareness campaign, our advertising on that efficiency. And we have the services but probably we have to do a better job of making people aware that they are there.

Mr. McGuigan: Just one final comment here.

Mr. Campbell: There is a good opportunity, by the way, in the apartments that the government now owns, the Cadillac-Fairview apartments. There is about, what, how many, 1,000 of us?

A Speaker: About 1,100.

Mr. Campbell: I used to live in one of them and it was like your suggestion that when the wind blew in the wintertime the windows would be closed but the curtains would be blowing out like those there. So there is great opportunity in some places like that to improve efficiency. I hope the government will set a good example.

Mr. McGuigan: As a businessperson whenever somebody tried to impose extra costs on me I scream that it is going to end my business too. I am a little bit jaded about whether or not that is actually true or not.

Mr. Campbell: Well, our customers tell us that they can absorb measured costs, such as the 4.9% that we are predicting for next year, but they would get pretty upset if we started to say it was going to be in the area that some of our critics have suggested they should.

1235

Mr. Chairman: Thank you, Mr. McGuigan.

Mr. Ashe.

Mr. Ashe: Thank you, Mr. Chairman.

I actually have three points. The more significant one in terms of length does not involve, probably, Mr. Campbell, so I will leave it for the next time around. But the first two I have do involve him before he leaves.

One is maybe clarification of an answer I think you gave much earlier, probably, I guess, it was in the discussion with Mr. Shymko. But I think that the Hansard record will end up saying that you said, and I will paraphrase, the Hydro board runs the day to day operation of Ontario Hydro. Now, maybe that is what I heard, maybe that is what you said. Maybe that is not quite what you said or quite what you meant. It is not my understanding of a board of directors so I think the record should be clear.

My understanding that the board of directors is to, of course, have policy review, policy direction, reported to from time to time and then it is the role of the president, followed by the administration, to "do the day to day operations of Ontario Hydro." Maybe we could get either my thinking clarified or the record clarified.

Mr. Campbell: You are quite right, Mr. Ashe. I should clarify that and I thank you for the opportunity because when I said the day to day I was comparing it to the kind of direction that the government might give. For example, on broad policy the government gives direction. The Hydro board, the day to day would not be a good term.

Mr. Ashe: I think that is what the record will show.

Mr. Campbell: Yes, all right. But let me give some examples then. The Hydro board, for example, set the rate which we are asking for 1987 of 4.9. The government did not give a directive on that. However, in terms of building Darlington the government--or delaying Darlington or cancelling Darlington, that is a major policy issue the government will give a direction on that and you are quite right. And the day to day management of the corporation, that is the responsibility of the president and senior executives of the corporation.

But within the kind of policy framework laid down by the board--and they work, of course, within the policy framework laid down by the government. That is accurate.

Mr. Ashe: Okay. Well, I am going to get a kickback from Mr. Franklin later because I just clarified his job role.

The one other one then that involves a question probably better posed to Mr. Campbell than anyone else. We have heard reference, I think particularly again this morning--I think you referred to it if not others--about the relative strength of the

economy the last three years, which of course has been coming out of the downturn in the economy which had to be expected, it was just a matter of the when and how long. But the further impetus that would appear now that is on the horizon that, I think you used the term mini boom that would last many years.

Mr. Campbell: Super boom, I think, Mr. Ashe.

Mr. Ashe: Okay, super boom was even better.

Mr. Campbell: That was not my term, I was quoting the Data Resources report.

Mr. Ashe: Okay.

Mr. Haggerty: Must be the change in government in Ontario.

Mr. Ashe: In actual fact I think societal study and that report will show it was the excellent policy that was put into place prior to last June. By anyway, that is fine. We can argue about that one on another day.

But my question is: do you see, if the kind of trend of the last three years, further accelerated by that boom that seems to be there and imminent and will probably grow, do you see not only the completion of Darlington units 3 as being imperative to meet a reliable electrical need, but do you see, at this time, the possibility of coming back to the government and saying, hey, we have to accelerated units 3 and 4. In other words, complete them prior to 1991 and 1992, as now scheduled, to guarantee the security of supply and to cope with this boom that is now with us?

Mr. Campbell: We have said last fall that the completion of Darlington was necessary to meet the load growth in an economic way. There are two factors that have made that more critical.

One is the lower level of emissions that were--control that was imposed on us by the Ministry of Environment after this select committee met last fall. So that makes it more necessary to have Darlington on stream.

1240

The other is the increasing--I was going to say risk, but I should not say that--opportunity for higher growth in this province than we expected. But the good times are on us and we have to try to cope with

them.

So both those reasons would emphasize that Darlington is required and is required to meet both the low growth and emission requirements. Otherwise we would talk to you about the cost penalties involved in kind of alternative scenario, very, very heavy cost on our competitive position.

Our estimate right now is that completing Darlington on schedule would enable us to do that, but speeding up Darlington units three and four would not be strictly necessary from the point of view of meeting the low growth or emission requirements. However, we have--the preliminary view we have on that is that speeding them up somewhat would result in lower cost, because any major construction project, the sooner you can complete it, the less cost it will be to the customers.

Mr. Ashe: My men would certainly correct you on that one.

Mr. Campbell: There would be an economic advantage. But there would not be...

Mr. Ashe: If my memory serves me correctly, I think we had testimony that it was estimated \$100 million per year per unit and to advance that. So two units six months each would be \$100 million, presuming that it is the same. I think that was the guesstimate, and I appreciate it was only that.

Mr. Campbell: Mr. Chairman, on this question we could come back to the committee with the written documents to give you some information on that if you would like. We do not have anything at our fingertips right now because we did not anticipate that question. But we could send you something.

Mr. Ashe: Well, I do not think frankly it is necessary for my purposes. I think the point I am making is that, you know, some people have only stats the other way, and I think we may end up or could end up with a scenario that suggests acceleration and not deceleration are in the best interests of this province.

Mr. Campbell: Certainly, Mr. Chairman, the other matter that I mentioned that the growth that we are now experiencing makes our problems of getting transmission lines more serious. Of the two that is an even more serious problem, because that is here now. We have locked in power--in the ice storm in March, we lost

our 500KV line from Bruce and we had to cut off some industrial customers. We had to import power from Michigan, and we are getting complaints from our industrial customers on that, and there is a cost to that. I mentioned the cost to Honda, that they say one second will destroy 70 cars on the assembly line. They have to be scrapped. That Dupont says an hour down will mean that their big new nylon plant is out of commission for a week. And our customers are increasingly getting concerned about reliability down there. So that is a serious area.

Mr. McConnell: Mr. Ashe, I think just to make sure we do not mislead the committee--I agree and understand the spirit of your observation and of course that we do have ongoing reviews in our planning process, and the reality is that the opportunity for us to advance Darlington units is very minimal in terms of units three and four. And so--with in fact that we find ourselves in a box. The advancement of Darlington three and four is not destined to help us very much. We would be under greater pressure if that occurred to bring some of our coal-fed plants back into service, and of course that would put us under pressure with regard to acid gas emissions.

Mr. Ashe: Thank you, Mr. Chairman. As I say, I have another area, but it can wait until the next time around.

Mr. Chairman: Before we move to Mr. Haggerty, I have one supplementary on your question--your point of reliability--you made the point, and you used the example of Honda, of the tremendous losses, economic losses they could sustain as a result of a one-second interruption, I think you said.

Mr. Campbell: Yes.

1245

Mr. Chairman: Do you think a public utility should be building supply strength and distribution strength to that kind of criteria?

Mr. Campbell: Well, I think if we are serious about being a--remaining an industrial power, we have to meet the demands of our industries or they will find someplace else to go.

The General Motors investment in Oshawa, they are putting \$2 billion to build the most modern, most automated car plant in the world, and Honda is a relatively small investment compared to that. And if

that is the price of an outage at Honda, you could extrapolate what the effect on GM might have. And one of the great economic advantages that we have had is : reliable low-cost power.

Our customers tell us reliability is more important than cost. Cost is important, but reliability is more important, and they will pay more for reliability. So I think our that our whole industrial space has been built on that advantage. We do not have an advantage of climate. There are lots of ways we do not have advantages. That is one we do, and I would say that that is very, very important. And our customers tell us that, like 90%.

Mr. Chairman: Considering the fact that the costs of building to that kind of criteria are going to be borne by everybody, would a no-loser's test win on that kind of scenario?

Mr. McConnell: Mr. Andrewes, perhaps I could--you have raised a question which is one of our favourite subjects. In 1968, Ontario Hydro led the world in going out and getting data having to do with what we call the "customer damage function". And what we mean by that is that if we interrupt our customers for a second or a minute or an hour or a day, we evaluated for all of our customers what the cost was to the customers of our failure to provide service, whether they were momentary interruptions or sustained interruptions. And with that data bank we developed, in 1977, a reliability specification that would minimize the total cost of society, all of our customers as well as our cost, to put those facilities into place.

And from that--and this was called the SEPR study, which was a System Expansion Program Review, and we developed a reliability specification of 25-system minutes and certain specifications about the duration and frequency of momentary and longer-term interruptions. It happens that no other utility in the United States has ever done anything quite extensively, and so the whole of North America uses Ontario Hydro data quite regularly in terms of the reliability evaluations because they have not actually done that themselves.

Mr. Campbell: I would like to just add a couple of points. Surveys we have done indicate that the customers who value our reliability highest are not the industrial customers but are the farmers. And I think you are aware a lot of operations that can be wiped out by power shortages. So you are not just building for the Hondas and the General Motors. You are building for a very broad cross-section of the population, and of course

then you have got the question of public safety generally.

The other thing is that we have got testimony from people like Dupont who say they have located in Ontario specifically because of reliability. Cost is important, but they have located here because of reliability. And I can tell you horror stories about the plants that they have in places with less reliable power. So it is not just a co-incidence that Ontario is getting a lot of high-tech industrial development.

One of the reasons is reliability. So if we turn our back on that, I think that would be a major, major error.

Mr. Chairman: I do not take anything away from the point about reliability, particularly--I am one of those farmers that is very much aware of your reliability. But at the same time, when we talk about a no-loser's test where all the participants in the system pay for the cost of that reliability, can the apartment dweller in downtown Toronto rationalize why they should pay part of the cost of building a system that is within one second of reliability to Ontario Hydro to Honda?

1250

Mr. Campbell: The people in downtown apartment buildings have elevators, and they do not like getting stuck in them, and so I think everybody has an interest in this. And the other thing about it...

Mr. Chairman: The second I do not think they would mind.

Mr. Campbell: The other thing is that--the other thing we have in this whole thing in terms of reliability is that the cost is not just calculated in terms of reliability to our industrial and our farm customers. The consultation we have had with all our customers indicate that the public that we deal with tell us that they want to have an extra reserve for reliability and they are prepared to pay more for it. They have distinctly said that that is one thing they will pay more for, is reliability, and it does not worry them if we have reserve capacity because they say if you are not using it yourself you can in fact rent that out. You can export that power until we need it ourselves.

But they want to have that reliability and they want to have that reserve, and we get that from our industrial customers, our farm customers and our individual home customers as well. Of course with the advent of computers and so forth, it becomes even more

important because a lot of--for example, small businesses, doctors now, have all their records on computers and they cannot afford to have backup power systems on their own. But if the power goes down, they will often lose a whole lot of valuable stuff. And so I think if anything, reliability is getting more important in a high-tech environment than it used to be 25 or 30 years ago.

Because, for example, in our auto plants, what happens with Honda, is the robots, if they are cut off, they will weld in the wrong spot and that ruins the car.

Mr. McConnell: Perhaps, Mr. Chairman, to bring an example closer to home, that is, to you or I. Our reliability is not so perfect that our hospitals and so on can afford to be without some emergency power.

Mr. Haggerty: They usually carry it.

Mr. McConnell: But I for one, if I was on an operating table, you know, having a heart operation, I do not really want to rely upon that diesel that that hospital has. So that these standards that we have got penetrate into all walks of life and are not just benefiting the industries, but they are benefiting you and I as ordinary citizens.

Now, certainly in your house, if you have an interruption of power for a short time, normally that would not be critical. So you have to have these standards, because in a bulk power system in which everybody enjoys the economy as a result of doing it as a whole, you have to consider all your customers in order to arrive at those standards.

Mr. Charlton: Do the municipal utilities in the province meet your standards in terms of the delivery systems?

Mr. McConnell: Do which?

Mr. Charlton: They meet your reliability standards in terms of their delivery systems.

Mr. McConnell: Which utilities?

Mr. Charlton: The municipal utilities, the people that serve my house.

Mr. McConnell: The standard of reliability in North America is in fact generally in the same ballpark as Ontario Hydro's. Now, there are exceptions

to this. It would be too expensive in the Province of Quebec to meet our standards of reliability, and the reason for that is that we are part of the eastern North American electrical system.

There are four major systems in North America: eastern North America, western North America, Texas and Quebec. And generally speaking, Quebec is the only exception in Canada...

Mr. Charlton: No, no, no. My question was, though--you have got a reliability standard which keeps the power in the transmission lines. Is the same level of reliability available in the municipal utility delivery system?

Mr. McConnell: Oh, no. The answer to that is no, that on the average that the reliability of the bulk power system would be about 20% of the customer outage and that the cause of outages due to our customers, about 80% of it is involved in the distribution system. So, by and large, both of those things contribute to loss of electricity.

1255

In the case of our industry, they hook--the large industries in which power supply is critical, they hook directly onto a bulk power system, enjoy that higher reliability and pay for added connection--facilities.

Mr. Campbell: ...at extra expense to themselves being hooked on in two different locations to our bulk power system, two different transformer stations because it was so important for them to get reliable power.

Mr. Charlton: But the point is, and it goes back to the Chairman's question, that the average residential consumer, then, does not get the same level of reliability as our major industry does.

Mr. McConnell: But they both pay the same rates for what comes out of the bulk electricity system.

Mr. Campbell: I think we are talking maybe about different things here, because you are running a municipal utility the large cause of outages are lightning strikes or freeze-over transmission lines, and that is often a localized kind of thing. And there is not a lot you can do to improve on that, but I think if you are talking about allowing our bulk system to get unreliable you are talking about major economic dislocation for the whole province. Because a local

system, if the lights are out in your house the chances are it is in a very small area around you with some branches down over some wires. It does not have a large economic impact on the province. But if our system starts to get shaky, watch out!

Mr. Chairman: Can I come back to my question on the no-loser's test before we lose Mr. Campbell? You have asked us a question as a committee to comment on the use of the no-loser's test on the demand side.

Now, I do not know whether I heard an answer to my question about whether or not you used the no-loser's test on the supply side in that specific instance of the reliability factor to that Honda plant.

Mr. Campbell: Well, I think by saying that our objective is, and this is a generally agreed objective in North America, we should have a 25% reserve capacity, is an inherent decision that reliability is important and is something that we are prepared to pay for. And I think it is not a question of applying a no-loser's test on that; it is a question of an assumption of what it requires to do business. Because, for example, if we decided to go on a lower level on that, cut it too fine, we could find ourselves being cut off from our American--both sales and purchasing.

I found it out in March it is Americans who help keep our lights on in Ontario. So those connections are valuable to us and we have to have reserves. So what we are saying is it is written--those kinds of questions are really not in power...

Mr. Chairman: You make it tougher for us to answer your question.

Mr. McConnell: Well, Mr. Andrewes, do we specifically apply a no-loser's test having to do with bulk electricity supply? And the answer is no, we do not. We attempt to provide a uniform reliability to all of our customers. From the point of view of delivery from our bulk power system, that is our desire, to provide that standard of reliability to all customers at an equal rate.

Mr. Campbell: If the committee is interested in exploring, Mr. Chairman, the question of reliability--I gave a copy of this to some members of the committee I think last fall--but focusing on this question of how important reliability is. You know, one of our employees comes from India and brought back with him a copy of The Times of India with an article on the reliability of their system and the effect that that has.

And it is very instructive reading.

I think if anybody is looking at just how important reliability is, I really commend you to read that article, and I could make it available to you.

Mr. Palmer: Concerning municipal utilities, I think there is an interesting observation to be made about reliability. Really all of them have local electric commissioners, and they can, in their interchange with their own customers, to some degree determine what level of reliability they want in their local distribution system. So that one does find some difference in local reliability as you move around the province, but that is a matter of local option to a very large degree.

1300

So I think that is a factor when you think in terms of--we made no attempt to insist that each municipality in the province offers in its own distribution system the same level of reliability as any other. That is something the local management and Commission can decide.

Mr. Chairman: We move to Mr. Haggerty with a question to Mr. Campbell. You just returned in time.

Mr. Haggerty: I was interested, Mr. Chairman, in Mr. Campbell's comments on page 4:

"Considering some of the barriers to electrical efficiencies, we've identified, we must be realistic about the speed in which new efficiencies can be implemented. We'll need compromise and support on matters like changes and rate design and patterns of electrical use. But the Demand/Supply Options Study will indicate our potential in these areas."

And we have had witnesses appear before the committee, but I thought perhaps we should be looking back--I suppose when we look with discussions of end use and efficiency and that, you can go back to the task force report in 1972-73 that--I think they had indicated end use--we had the select committee on Ontario Hydro in '75 or '76, and we talked about efficiency at that time. In fact I think one of the comments was that Ontario Hydro change its planning process to emphasize meeting Ontario's electrical energy needs after implementation of conservation and load management programs with a minimum amount of new generation that is consistent with sound planning.

You know, we come and set conservation, and we have seen it in the Royal Commission Electrical Power too have indicated that I think in the Porter Commission report indicated end use and efficiency in that area. Now, on this page it says: "We are going to look at a study in demand/supply offsets" and other terminology I guess for end use and conservation and so forth in it. But there is another study to that.

The question, you know, comes down in your comments to Mr. Ashe was that--the question was one and two of Darlington. Yes, there is a demand for that now. I think we could all agree upon that. But the question about 3 and 4--and it has been a long time to get back to this question, but you made some comments and I was not quite sure just what it was. You indicated: "I do not think we need 3 and 4 to advance it to an early stage, we can get by with that."

And the question is, I suppose, if we would have had Hydro or the Ministry of Energy--perhaps I should put it that way--that did not provide the dialogue with Hydro or suggestions that you should follow out with that study on end use at that time, perhaps would there have been a need for Darlington this soon, even one and two, if we would have had that study or further implementations on efficiency and electrical use?

We know that you went into the area of--Hydro went in the area of insulation, home insulation; there is no doubt about that. Because that was one of your selling points for electrical use in heating homes, for heating purposes.

Mr. Campbell: Well, we believe that there has been great progress, and I think we can demonstrate great progress made in more efficient use of electricity. The federal government, with the co-operation of the provinces, had their energy subsidy programs for home insulation and their off-oil programs and that kind of thing. And the Ontario government had its program to fix up your older homes and that kind of thing. There has been an immense amount done in Ontario.

Now, I am not saying there could be more done, but we do not believe that there could be any substantial changes from the pattern we are having now, and I point out that we are counting on future savings of the equivalent of another Darlington and further efficiency.

Mr. Haggerty: On what basis?

Mr. Campbell: Further efficiency.

Mr. Haggerty: On efficiency and conservation.

Mr. Campbell: And perhaps two Darlington's in the next 15 years, if--we believe we can count on one with existing incentives in place, prices and so forth. We think we may get another one by extraordinary time and efforts that we might make with incentives.

1305

But what I was referring to in the passage that you quoted back to me, one example of that example was seasonal rates, which were introduced, believe it or not, as an efficiency measure. We were urged to do that by a number of quarters including the energy board. And we proposed to study that and got pretty roundly criticized, I would say--that is putting it mildly--by people like Mr. Gordon--

Mr. Cureatz: Not our Jim.

Mr. Campbell: --in northern Ontario, and it became very clear that that just was not acceptable to the public, just not acceptable. And that was an efficiency measure and we could demonstrate that you could get significant savings of power. But the public were not ready. They did not want--

Mr. Haggerty: I am surprised that a northerner could not sell them that--

Mr. Campbell: The public did not even want to discuss it, and I can show you a few scars on that issue, and so we said, by popular demand, that is one the public is not even ready to consider. And so that is the kind of problem that I was referring to there, that the theoretical kinds of changes you can make in rates are not always acceptable. And the other one, of course, is time abuse, and there again, by popular demand of industry and our customers and municipal utilities, we were studying that and they said give us a three-year moratorium on that. We do not want anything introduced there for three years until they have time to digest that.

Now, we think that there is great promise in time-of-use rates; that is, day/night and that kind of thing, and we think that will not offend northern Ontario. But again our industry and our municipal people are very skeptical, and I come back to this question that we are told very clearly, like 90:10 is that do not impose things on us. It is all right to have a program

and it is all right to provide incentives, but tread very carefully in our society if you are going to impose new structures.

Mr. Ashe: Sounds like Bill 94 to me.

Mr. Haggerty: Well, to go back, I think when you look at what your suggestion there is, you know, that you are going to have another task force within Hydro, I suppose, on supply/demand options and that, you know, and the question is: who is going to give you the directions, then, to carry out your findings on that?

Is it going to be the Minister of Energy, or is it going to be a committee on energy? Or the point is, what are your recommendations, you know, to carry out these things does it have to be done by legislation?

Mr. Campbell: We have said--it does not require legislation--but we have said it has to have two ingredients. It is so important for the economic future of Ontario that it should have the support generally of the public and specifically of the government. Now the government can consult, a committee like this or whatever--we will consult them gladly, but it would certainly have to have the support of the government. And presumably they would not do anything that they did not feel had--

Mr. Haggerty: Well, that was my point when I was quoting the comment from a select committee in 1975 or '76. We suggested that, but it had not been carried out. I think Hydro had carried it out to a certain degree to their mandate, but really there was no direction from the Ministry of Energy at that time to say this is the direction that you should be looking at.

My question was: you know, was there some direction the Minister of Energy at that time to tell you to go in it. Now, you see we come in with a further study in that, you know, and saying, well, this will show us that we do not need another nuclear plant. You can see it heading that way, you know, and I am like Mr. Ashe, you know, when it comes to it I hope that we can use all four units because that indicates that there is jobs in the Province of Ontario. And we all look for that, you know.

The question of the heavy expenditure in this particular area can, you know--there is a cost involved in that--but I was looking at, you know, a legislation and is there some direction that we can say yes, if we come in with recommendations to the committee this time, hopefully that the government will show some energy in

this area and give you the go-ahead to go in that area then and some directions, whether it be in purchase of power or hydraulic resources and conservation.

Mr. Campbell: Well, I think the Ministry of Energy has indicated, Mr. Chairman, that it is interested in pursuing a number of those things, such as purchase of power.

Mr. Haggerty: I would want to make sure that that was a good deal before we got into it.

1310

Mr. McConnell: Well, Mr. Haggerty, if we were to put in our draft strategy that we should impose seasonal time abuse rates, would you want us to go ahead if that was not publicly acceptable?

Mr. Haggerty: Well, there are studies and reports in the United States just for the time change from, what is it, daylight savings time to standard time, there is a savings in it. And the question is: if there is, I suppose you have got to convince the public in the sense of saying yes, this is a good program. I thought there was a member that had a--was it you that had the bill in the House, sir, that said that you want to change the time, say, instead of from April the 29th or something like that, bring it in the 1st of April and then extend it another month from October to November or something like that. I thought there was a bill in the House on that. An individual option.

Mr. Chairman: Thank you, Mr. Haggerty.

Mr. Gordon: No more questions for me, Mr. Chairman.

Mr. Chairman: Well, I think Mr. Campbell--unless there are others I think we can--

Mr. Haggerty: We will all pair off with Mr. Campbell. How will that be?

Mr. Chairman: Well, I think there are a number of other questions that members have. What I am going to suggest is that we adjourn for 20 minutes, half an hour, and the members of the committee can satisfy their growling stomachs and we can return to the questioning. Twenty minutes, half-past one. Thank you.

The committee recessed at 1:11 p.m.

The committee resumed at 13:37 p.m. in committee room 2.

1355

This in part relates to things that I raised earlier. I am referring to page 52, and you have said in response to my question earlier about the data base that some things are happening now, and when you have completed phase 2 of DSOS or gone through phase 3 and had it approved, that that is the point at which you are going to start announcing the expansions of staffing arrangements in Hydro on the demand side to go after some of the additional data base that you say you need.

And we have also heard testimony both from yourselves and from a number of representers that there are barriers involved in a number of the demand side options. In that final package that comes out of DSOS, can we expect to see a package from Hydro of recommendations for any legislative changes you think might be useful, any programs related to standards or other initiatives the government have to take in order to start seriously maximizing whatever potentials you identify on the demand side?

Are we going to see a package from Hydro of recommendations of things that perhaps Hydro cannot do that should be done if you have identified an economic benefit in terms of cross-benefit analysis of demand side options?

Mr. McConnell: I believe that we, just to respond to your first observation that I identified to you a three-step process to set the strategy in place that is acceptable to the public and the government and the legislation; second, we develop the programs which requires a number of things to be done; and then, thirdly, execute it. And I indicated that the staff increases would tend to take place when you get to the execution stage.

So that was just--and the strategy that I talked about, I said that that first step we hoped to have in place by the end of 1987 and that, however--Mr. Palmer can tell you that we are not totally waiting for that all to be in place and that we started really a couple of years ago in starting some pilot demonstrations and so on. So it is not totally in series. There is a little overlap between those three--

Mr. Charlton: Yes, I understand that.

Mr. McConnell: --in order to speed up the

process.

Hedley, perhaps you could add to that..

Mr. Palmer: I was going to say, on the business of standards, I guess we had not anticipated at this point we would be bringing a package in which we would be recommending some change in standards or in social structure or that kind of thing.

On the other hand, we do spend significant amounts of time on the business of standards and working with government and industry and so on, where we perceive that an improvement in standards in a particular instance would be beneficial as from performance, safety and efficiency points of view.

So I think I am saying to you at the moment we have not anticipated doing that, but I take it there are recommendations from the select committee fed back to us. We have to consider that very seriously.

Mr. Charlton: Well, that is one of the things that I want to see happen. I raised this I guess three weeks ago when you were making your initial presentations that--

Mr. McConnell: I do not want to mislead you that--the demand/supply option study, its product is the basic strategy--

Mr. Charlton: Yes.

Mr. McConnell: --and the programs follow that. So that the strategy itself does not carry in itself all the detailed recommendations for the implementation.

1400

Mr. Charlton: Oh, I understand that. What I want to ensure, whether I have to do it through the recommendations that this committee makes or by discussing it here with you, what I want to ensure is that in your development of strategy that you are not going to preclude a strategy because you do not have the power to implement it; that if you identify a strategy that looks useful that we will get as legislators a package of recommendations about things that we should consider doing instead of it just--okay, Hydro, we Hydro cannot do this, we will set that one aside and forget about it because we do not have the authority to do that and nothing ever happens.

What I want to be assured of is that when you have looked at all the strategies that could cause a benefit, that if there is a strategy that needs to be addressed by government, because Hydro does not have the authority to address it, that we will get a package. That is what I want to ensure.

Mr. McConnell: The answer is yes, if Ontario Hydro felt that say mandatory standards should be put into place having to do with some specific application and it was beyond our authority to do so, by all means, we would recommend such action. And this morning we were also attempting to communicate that we were dealing with a dynamic program. We would not necessarily be recommending all such actions at time zero, that this is a continuum, and that that could come up from year to year, such actions.

Mr. Palmer: Let me try to illustrate this. It certainly was well known around our shop for the last 10 years that if one really wanted to save energy in the residential market, the thing to do was to go out and promote cold water detergents, because they are effective, and the amount of hot water used for clothes washing is very significant. Yet, somehow or other, that does not seem appropriate for us to do within the social situation in society in which we live.

But it is clearly--

Ms. Grier: What is inappropriate?

Mr. Palmer: Well, I do not quite know.

Mr. Charlton: You are suggesting, I think, that it is inappropriate for Hydro to do that perhaps.

Mr. Palmer: Yes.

Mr. Charlton: And I guess what I am asking is simply that you have identified a whole range of things that you do not think it is appropriate or that you do not have the authority to do, that that information gets passed along so that we can in fact weigh it, and we may decide that it is not appropriate or we may decide that it is in the political arena where we have to deal in a very real sense with the public, i.e. our jobs in the next round.

We have to weigh the advisability obviously of all of the things we consider but at least, then, they will get considered by somebody who perhaps has the authority to make that choice.

Mr. Palmer: Let me give another illustration, because I think it is significant here. Some of you may have heard of the "Smart House"-up till now. I do not know whether that has been a part of the committee's deliberation or not. But we are fascinated by the "Smart House" idea. It is being developed by the National Homebuilders Association in the U.S. and it offers a number of factors, but three of them are of intense interest to us.

Number one, it promises to reduce the cost of bringing all kinds of wired services to an individual house. That is one of the promises. It promises to increase the safety of the use of electricity within the home very significantly and it promises a whole new generation of appliances that are significantly more efficient than the ones on the market now, because the technology or their use will be quite different.

Let me say it "promises." It has not delivered yet, but there are enormous sums of money being spent. And very recently we decided and we had an opportunity to have just kind of a close eye to this thing. We had an opportunity to be on the advisory council of the American group, which involves other utilities and many other stakeholders.

1405

But even if 50% of this potential develops over the next 15 or 20 years it will revolutionize the manner in which electricity is used. So there are those kinds of things to think about as well as what we are doing now.

Mr. Snelson: We have given you a document on the standards, and there is an appendix to--

Mr. Charlton: Yes, you mentioned that this morning.

Mr. Snelson: --and it does at the back have some suggestions of areas where standards could be written or graded. They probably will not go as far as you would like them to go.

Mr. Charlton: I understand that, and you mentioned that this morning, and I will have a look at that when I have a chance. But I guess what I was getting at now was, in addition to standards in a development of strategies, you may see strategies that you are not in a position to--or you do not feel you are in a position or you are in fact legally not in a position to follow, and that is what I was talking about

in terms of package.

Let us move on. Just the one last thing that I wanted to deal with, and it is more in the way of a comment than a question to Hydro, and this is the comment that would have gone to Mr. Campbell so I am sure you will relay it to him.

You, Mr. Snelson, raised again in your presentation this morning all of the people that made presentations to the committee in one way or another and commented on some of the things and some of the contradictions and some of the disagreements and so on and so forth. But I want to take just a moment to point out to you one of the things that was raised by several representatives that I think Hydro needs to think through in terms of how it operates in its relationship with us and with the public.

The two that I can specifically remember, although the comment was made more than twice, were Mr. Tory (phon.) and Dr. Robinson when they essentially said that when they got the material on phase 1 and in discussions with a number of Hydro staff they were very pleased and very hopeful about the new directions that they were hearing about. And then when they sat down in here and listened to some of the top management of Hydro making their early presentations three weeks ago, that their skepticism was again raised to a very serious peak.

And I think that that is something that you very seriously need to have a look at in terms of what sometimes happens in committees like this one. I think their comments about what they found in the first instance and the impressions they got left with from the initial presentations that were made here are something that you need to look very carefully at in terms of how you approach this whole idea of public consultation and public involvement.

Thank you, Mr. Chairman.

Ms Grier: You do not expect a response then?

Mr. Charlton: No, I do not expect him to respond; I am just expecting him to pass it along.

Mr. Chairman: Can I just have one short supplementary on that question?

What is the criteria for the public participation, for an individual group position to be represented in a public consultation?

Mr. Snelson: I can perhaps respond to that as to the programs that we have instituted in the last year or so. We had two basically consultation processes or three consultation processes going on in the last year in addition to some information programs, but I think consultation is really where your question is headed.

We maintain a list of about 120 provincially organized groups who have in the past shown interest in Ontario Hydro's operations and intervened or consulted and asked questions and so on. And our provincial interest group consultation program started out by a letter to all of those groups asking them to attend an initial meeting at which the general process was outlined and the purposes and they were asked to come to another meeting if they wished to continue through a consultation process of about five meetings and prepare a brief to us. So that is the criteria that was used in that case.

1410

The other consultation programs, there is a regional consultation program, which is organized in the regions, two or three meetings in each region. The regional staff have drawn up the list of people who are invited to attend, including press. These included local mayors, perhaps the Commissioners of local utilities, headmasters of the schools, the community leaders, and including representatives of environmental groups, you know, prominent people from the community who were thought to be interested or possibly interested and whose opinions could carry some weight.

So the other consultation group, the criterion was very easy, and that was the municipal utility consultation, and there, each municipality was invited to send its chairman and its manager to the meetings in the regions.

Mr. Chairman: So you can anticipate my next question and that is that ONGA, as an intervenor at rate hearings and so on, were likely invited and declined to be a participant? Because here the other day, they said they were not a participant.

Mr. Snelson: I heard them say that, and to be quite honest I do not know whether they were on that original list of 120 or not.

Mr. Chairman: Mr. Ashe.

Mr. Ashe: Thank you, Mr. Chairman.

My first point, I guess, is to Mr. Snelson,

although I am sure Mr. McConnell will have a response as well. It relates particularly to the opening presentation response to others, if you will, and I was very surprised to see that you very studiously avoided a rather lengthy and significant presentation and dialogue that we had the day before yesterday with that same ONGA, the Ontario Natural Gas Association.

They made quite a few statements, quite a few allegations, quite a few references in there that I thought you would take some umbrage with. But either you fully agree with what they said or you dismissed their relevance or you just forgot. And there were a lot of points particularly to do with, well, forecast uncertainty, pricing incentives, financial soundness, of course the systems expansion process and the fact that it is excluded by the Minister's letter to the OEB, the whole supply question, the references.

And if you will recall, there was a fair bit of dialogue that involved me to do with the fact--the coal fire generation and exports, putting the connotation, and you can maybe clarify this for the record and my purposes that there is no nuclear energy, nuclear-generated energy, that is used for exports.

Now, I appreciate that you do not sell it in the context of the price, but the implication was, if you had a nuclear station fully going but then you made a sale, an export sale, that you shut that down and started up a coal-fired station, because that what you sell is only coal-fired generated exports. And there is no evidence in statistics to back it up at about 98.5% or something like that that was supposedly generated by coal fired.

My understanding was that is not necessarily so. In a peak situation, obviously that is what you have already fired up any way, but it is more for pricing. You are not going to sell your cheapest generation. Obviously you are going to sell it at the higher priced generation and obviously and hopefully if it is mutually attractive you both make a buck out of it.

And last but not least on the same issue, and this reference I think was referred--I do not think it was an HR14, but I think the reference was made that during representations to the OEB rate hearings last year in the dialogue that, quote: "There would be no excess nuclear power, nuclear generated power, available for export before 1994." And that, just thinking of the timing, just does not add up.

I do not know what the significance is of

1994. Under the current schedule, 1992 is the last unit of Darlington coming onstream, and we have got the last of Pickering on the grid and the last of Bruce Bay on the grid, and one, two and three and four all on the grid before 1994. Still with supposedly growth rate--but that one, I could not challenge it because you made a specific quote and it was there. And so maybe you could clarify that too.

1415

In other words, he was saying that you said last year at rate hearing--and I say you, I forget who it was--that there was no excess nuclear-generated power available for export till 1994. And if you want to carry that step further, that is kind of in conflict with all of the charts that we had that showed somewhere in that area or beyond our supply/demand lines were going to cross. I say "or beyond" because that is the whole issue of the low, the mid-range and the high growth factor. So I left you with a few there.

Mr. Snelson: Can I respond, first of all, to why certain things were excluded from presentation nine? And we very clearly said here that we were trying to keep this document to the point, to the point of the matters that were relevant to the Demand/Supply Options Study. All sorts of people have come here and spoken about broader policy issues or rate issues or other matters that go far beyond the Demand/Supply Options Study, and it is sufficient here to try and respond to the points that were relevant. We certainly could not have, in the time available, responded to all the other points as well.

We did not completely exclude the Natural Gas people. They did make some relevant points. We thought it was quite relevant that they thought that as a gas utility, that all they had to do to encourage conservation was to put in bill stuffers, bill stuffers and a bit of information and advertising, and that was all they needed to do. And I think that it is a relevant question to consider if that is good enough for the gas company, why is it not good enough for the electricity company or vice-versa?

If the electricity company should be investing money in incentives for conservation, then why should not the gas industry? I mean, what is good for the goose is good for the gander.

Mr. Ashe: I think I asked them that question, if you will recall, about--

Mr. Snelson: Yes, I believe you did. Also in the presentation was another comment they made, which they danced around very carefully, but the possible market distortions that you can get if the electricity company is paying incentives for electrically heated, for instance, to be brought up in standard; that makes an electrically heated house cheaper and increases the market share. And I think you asked that question too, Mr. Ashe, and they gave you the answer that you had to look at the broader question and all the energy fuels--and all the other fuels had to be brought into the equation.

We thought those comments were very relevant to the matters that you are discussing as a committee and that is why we included them in this presentation." The broader matters we decided to exclude at this time for want of time.

Mr. Ashe: Well, I think the reference is to HR14 and the export issue and the 1994 are all relevant to the question of future load growth and how you are going to fulfil it or cut down demand. I think all those three are not irrelevant to that question.

Mr. Snelson: In responding to the HR14 reference, really one would have to go back and look at the full transcript and look at the context and see whether the comment related to the surplus before the exports that were expected to occur, whether there was a surplus above expected exports of whether it was not. There are various ways that it could be, and quite honestly, we have been working till 10 and 11 o'clock at night never mind--

Mr. Ashe: Is that all? I gave you credit for working all night last night.

Mr. Palmer: We are efficient.

Mr. McConnell: Some of us did.

Mr. Palmer: If I might add to Ken's remarks. I have been a witness for several years at the Ontario Energy Board, and it seems to me that ONGA, who have intervened, have generally been on the theme in this connection that Ontario Hydro should sell its surplus in export; that is, if it has surplus capacity this time, it should sell it, and that would be better off for Ontario than attempting to sell more within the province, that is, increase the sale of energy within the province.

So on the whole, their cross-examination tended to try to establish points of that kind.

Mr. Ashe: I do not recall them trying to make that particular point in that fashion the other day, unless somebody else's recollection is different from mine.

1420

Mr. McConnell: Perhaps I could add just a few conceptual observations with regard to the issue of export, that the commitments of generation capacity that have been made up till now have been committed to meet Ontario needs. However, that if one has installations to meet Ontario needs, that the power that is needed is not a uniform top peak all of the time, and so this means that from hour to hour and week to week that there are opportunities for us to lower the cost to our customers by exporting.

So that all of the utilities are buying and selling power from hour to hour. And, for example, you appreciate that if we have some low cost energy that was not needed, say, on a Saturday night or a Sunday or in the summer time or on a statutory holiday or any other time and another utility had a higher cost unit running, that we would offer that energy for sale and they would buy it because it would save them money too. And generally those transactions are made on a split savings basis: 50% goes to the buyer and 50% to the seller. And that we would expect small amounts of nuclear energy to be available for such sales over the coming years.

We do not expect that it is going to be large. Our sales opportunities will continue to be more related to fossil-fired plant, but in principle there is nothing that would prevent us from wanting to lower our customers' costs. We would certainly sell economy nuclear a small part of the year. And there will be occasions like that before 1994.

Mr. Ashe: So that clarifies that issue. I think the other part that is somewhat at conflict the way it was presented. We are talking again about acid gas emissions, talking about promoting exports wherever financially attractive, and I do not think anybody disputed that, even ONGA, in a financial sense. But they were saying those two things were at cross purposes, because the only thing you are selling by your own testimony is coal-fired generation, and that even if you carried the assumption further--and let me use a very--and I realize it does not work this way--but a simplistic example.

You have got Unit 5 at Pickering at 540 megawatts. You only need 300 megawatts today for your

own grid purposes, and you have an opportunity to sell 200 megawatts, but you have got Unit 5 down to 300 megawatts and fired up a coal-fired station so you can sell 200--

Mr. Palmer: No.

Mr. Snelson: No.

Mr. Ashe: I realize that, but I can tell you that that was the implication and in fact your own testimony, and coming at it from two different ways, really said the same thing.

Mr. Snelson: Can I give you just a comment there to show you how complex some of these things are?

Mr. Ashe: I know. I told you it was not that simplistic. I am somewhat familiar with that work.

Mr. Snelson: We have new nuclear units coming on line, and it may be that because we have a new nuclear unit coming on line that we can in fact make an export that we otherwise could not make. We do not tell the Americans that. What we tell them is that we have got a new unit coming on line. That allows us to supply some Ontario load from that new nuclear unit and get the benefit of that, and that makes some coal-fired plant surplus for sale.

If we tell the Americans that, we get a better price because we are selling coal and we are not selling nuclear. So you cannot really tell where these things come from, but--you know what is on the basket--

Mr. Ashe: I understand all that. As a matter of fact, I gave that explanation to back it up, but I just want to make sure that the record clarifies that issue because it did come up.

Mr. Charlton: But that raises another question, though. What you tell the Americans is one thing. What do you tell Energy, Mines and Resources Canada?

1425

Mr. McConnell: Basically what you are telling the Americans is true. That is factual. If you have got a new nuclear unit coming on line and you are going to run it and you are going to run it to the benefit of your own customers because it is a lower priced power, that will in fact make some coal-fired plant available to generate electricity and sell to the

United States.

Mr. Charlton: That is right. So the point that was being made is correct, then, that the export is inevitably going to be coal. There are going to be some exceptions, as Mr. Ashe has said and as you have said. If you have got none of your coal base in operation because it is a low day and you are running your nuclear plant and you do not need it all, then you are going to sell whatever you can of your excess.

The figures that Energy, Mines and Resources use show that of your exports, 96.4% of them are coal based.

Mr. Palmer: That is probably not too far off. I am not into this, but there certainly are hours in the summer in particular and in the spring and fall where we do have nuclear plant at the margin and there is extra kilowatt-hours to be generated from nuclear--

Mr. Charlton: Again the figures here show about 2.5%.

Mr. McConnell: Well, Mr. Ashe, I think that if in fact the evidence that we gave you was misleading, it is certainly important that we try to correct that.

Mr. Ashe: Not anything you gave us. It is one of those issues where they picked out something from HR14, they picked out something from last year's testimony to the Ontario Energy Board and put the two together and therefore said it is in conflict with what you are saying about acid gas emissions and surplus and shortages. You did not tell us in the sense of testimony to this committee.

Mr. McConnell: I have just been advised that the document that we left with the Ontario Energy Board did in fact identify nuclear export.

Mr. Charlton: Can I raise one last supplementary question on this question of export and goal? You seem to agree that about 96% of your exports are from coal plants, and we have had this discussion this morning about the new regulation and about the impact of the new regulation.

To what extent in your export pricing are you taking into account the fact that it is export, that it is acid gas emissions and that you have got a regulation to meet? How much of the cost of the new regulation are you prepared to recover from export?

Mr. McConnell: We take that into account in two definitive respects: first of all, we would not export if in fact that was going to push us over the limit of what we are permitted to emit; secondly, that we take into account, after some extensive studies, what is estimated to be the adverse effect on the environment. We translate that environmental impact into a dollar value. And when we file for an application to export electricity, we have to submit to the National Energy Board evidence that shows what that environmental impact is.

So that in fact we end up in the end saying this is in fact a good deal for our customers in terms of the rates and that we have also taken into account any environmental degradation that is associated with that incremental acid gas emission even though it was below the emission limit to which we have to work. So there is a trade-off.

Mr. Charlton: All right. The question is, do you charge the customer? We have talked here about the additional costs of meeting the regulation if Darlington is finished, and we have also talked about the additional cost of meeting the regulation if we were to cancel Units 3 and 4 and all the rest of that, and the implication has been that that total cost is going to be borne by the Ontario ratepayer, that we are seeing a significant export of full-fired generation here. To what extent is some of that additional cost being picked up by the foreign customer?

1430

Mr. Marriage: In addition to the costs that Mr. McConnell has just identified, as part of the justification before the National Energy board, we have to show that we recover all of the costs to the Canadians. And any incremental cost for acid gas control will be factored into the price of the exports.

Mr. Charlton: Yes, I understand that. Mr. McConnell said that.

Mr. Marriage: I was not talking about the social costs; I was talking about the costs for the physical part of the program.

Mr. Charlton: All right. So they are both in there?

Mr. Marriage: Both in there.

Mr. Charlton: What I am asking is, you have

presented us today with the additional cost to Ontarians of the new regulation and the additional cost to Ontarians of cancelling Units 3 and 4. I want to know how much of that is really going to end up coming out of Ontarians pockets and how much of that is going to end up coming out of somebody else's pocket.

Mr. McConnell: If it is an export that Ontario makes to the United States, the revenue that we get minus the cost that we experience in producing that electricity is fed back to our customers in reduced rates, the whole amount and it is far in excess of the estimated penalties that our customers are receiving because they receive the impact of that acid rain. And so that the customers' rates are lowered because of the revenues that we get.

Mr. Charlton: All I am trying to get at, though, is--the figures for the cost of cancellation that have been presented to us have been presented to us as costs to be borne by Ontarians. And I think it is clear that not all of those costs will be borne by Ontarians.

Mr. Snelson: I think I can answer that for you, and that is that they are the costs that will be borne by Ontarians; they are the costs that are incurred because of Ontarian load. If there are additional--if in fact in that period there are coal-fired exports, and if those--those coal-fired exports, if they exist, will generate a need for additional acid gas control measures, and the costs of those additional acid gas control measures will be additional to the numbers that we have estimated and they will be charged to the export customers who have caused them.

So if there are costs to maintain in coal-fired exports, and if the coal-fired exports actually exist in that timeframe--we are talking post 1992-93, if we still have coal-fired exports at that time, there will be additional costs to control acid gas emissions to allow those exports to take place and in the regulations--

Mr. Charlton: That is assuming that you are running all of the coal plants that you have putting emission controls on 100% of the time for Ontario load, and that you, therefore, to export have to add additional controls to plants you are not using for Ontario load. So we are talking here about the control measures you are going to have to take on plants to meet the Ontario load, and we know that those coal-fired plants that you are going to retrofit are not going to run all day every day 365 days a year to meet the Ontario load.

Some of those days that you can run those plants after you put the emission controls in, you are going to be running them for export, not for Ontario load.

Mr. Snelson: If we run them for export, they will produce acid gas emissions, but, as I said before, even a scrubbed plant produces acid gas emissions and there will be additional costs for acid gas emission control because of those additional acid gas emissions, which would--to prevent--

Mr. Charlton: Well, answer this question for me. The \$15 million a year that was quoted in the southwest hearings as the operating costs of the scrubbers once you have installed them, the additional costs of operating those plants once you have installed scrubbers, that \$15 million a year, is that based on a full year's operation or is it based on your calculations of some part of year's operation?

1435

Mr. Snelson: Some of the costs do not depend on how much you operate the plant. The staff that is required to operate it...

Mr. Charlton: The 15 million were quoted as operating costs, though.

Mr. Snelson: Yes, but what I am getting is, operating costs have some components that--

Mr. Charlton: Some fixed components, you are right. Yes, I understand that.

Mr. Snelson: --staff and things like that or other variable components, when, for instance, limestone or something like that is required to inject into the concrete, and that will depend on how much we operate the plant.

Mr. Charlton: Well, what I am trying to get at, though, is that a total of 15 million a year--

Mr. Snelson: Yes.

Mr. Charlton: --does that figure come to you by adding up the fixed costs and the costs of operating the plant all year or for part of the year?

Mr. Marriage: It would be based on the assumed capacity factor, which I cannot tell you what it was in those calculations. It would not have been

assumed that they were running 100% of the time.

Mr. Charlton: All right. You have always got some down time in every plant, yes.

Mr. Marriage: Whether it was 40% or 60% of the time, it would have included the fixed costs and the variable costs.

Mr. Charlton: All right. That is what I am trying to get at so that we can ultimately understand this question of additional costs in Ontario, and I think we have to know that in order to determine whether the billion dollars is all going to be paid by Ontarians or not.

Mr. Snelson: The answer that we are giving you here, Mr. Charlton, is that this is our best estimate of what will be paid by Ontarians and what will be caused by the load of people in Ontario and the additional costs for exports will be passed on to export customers.

Mr. Charlton: Well, can you provide us, then, as I asked before, just how that billion dollars was come up with, what it is made up with and how you come up with that \$15 million operating cost for the scrubbed plant, additional costs? Can you provide us with that? Somebody obviously calculated it.

Mr. Campbell: We will send you that.

Mr. Gordon: Mr. Chairman, any one of you can answer this question; it is not a very difficult one.

The soft energy path people would look at this response that came to us today from three marketing programs, and on page 4 at the index at the back where you talk about energy conservation street lighting retrofit program for Ontario between '82 and '84, the approximate cost was \$100,000. The objective of course was to reduce the electrical energy consumption and KW demand for street lighting and to show through example that simple replacement of inefficient lights with modern efficient lamps works.

Now, soft energy people would say that that kind of program would be really worthwhile if Hydro was to have a way of compensating or encouraging the utilities throughout Ontario with dollars to get into a program like this. Because if you did that, you would be reducing the demand for electricity, you would not have to fast-build another power station as soon as perhaps you would if you did not do this.

Now, if we just take that as an example--that

is a relatively simple example--I would like to ask you a number of questions: number one, whether or not you would be interested in the future in doing that; in other words, providing some kind of financial incentive to utilities either through the rate that they paid for bulk Hydro from you; that is the first question.

The second question is: how successful was this program? Now, I just have a little interest in this, because at one time I was a Commissioner on a Hydro utility and I can remember seeing that more efficient lights were put into a certain section of Sudbury.

Mr. Haggerty: No wonder Sudbury was in the dark.

Mr. Gordon: Well, they are really in the light now. But, you know, the interesting thing about it is that this particular section of New Sudbury, which is a suburb of Sudbury, has had those new lights put in, and that has been maybe six or seven years, and since that time the remainder of the streets are still using the old type of bulbs which are less efficient and years have gone by. And every time I go for a walk I always say to my wife that I cannot understand why we do not have more of this special lighting which makes the community much safer, there are fewer breakins, so forth and so on.

Now, I know that--Hedley is smiling away there, so I know he has got a good answer for me on number two. I welcome the answer, but I just wonder, you know, how successful is the program? What happened with it? How many utilities took part in it? And the first question, which was basically are you willing to put your money where your conservational mouth is sort of thing.

1440

Mr. Chairman: A knuckleball, Mr. Palmer, and it is kind of hanging out there.

Mr. Palmer: Yes. I cannot answer any of those questions.

Mr. Gordon: I promise you this is not a trick question, I assure you.

Mr. Palmer: As to numbers, I cannot answer any of those questions. I will tell you that if we were to ante up the money to encourage the program to move along faster, we would in turn charge it to the cost of supplying power to the municipalities, so it would be distributed back to them probably disproportionately to those who took up that incentive.

Mr. Gordon: So you are saying there is no free lunch.

Mr. Palmer: There is no free lunch. But it is an excellent program, and in a very general way I do know that street lights are being replaced. Again, it is a matter of local budget, and the municipality who ultimately pays, not the utility but the municipality, will only allocate so many funds in a given year for replacement.

Mr. Gordon: So the Hedley soft energy people would say that by your putting up some kind of incentive, some dollars or some kind of break, to those utilities, you would be saving in the long run, not just because you would be doing it with this one program but you would be doing it in many programs, that you would be saving yourself millions and millions of dollars down the road.

Mr. Haggerty: Would they be...

Mr. Gordon: Well, that is what I want to know. I mean, see, the soft energy people come in here and they advance this point of view and create the doubt that you are really interested in conservation. So I want you to give me an answer that either refutes that or shows that perhaps you have to go back and do a little more work in conservation.

Mr. Campbell: Mr. Chairman, AMPCO sends its regards, by the way.

Mr. Gordon: Oh, yes.

Mr. Chairman: We were wondering, Mr. Campbell, the way you went at those sandwiches whether or not AMPCO, because the rates were going up, could not afford to feed you.

Mr. Campbell: You got it.

Mr. Gordon: You cannot be bought.

Mr. Campbell: Mr. Chairman, I think I am happy to say that we may well end up doing that. We may well end up giving financial incentives for people to use more efficient lighting, and I guess that is one of the options we are looking in the Demand/Supply study.

Mr. Gordon: Gee, Brian left. Do you want hold that and bring Charlton back in here.

Mr. McConnell: Mr. Gordon...

Mr. Gordon: I do not mean to interrupt if you want to keep going.

Mr. McConnell: I was going to refer you to the paper number 11, if you have got that in front of you.

Mr. Gordon: Well, I am sure I have it here somewhere.

Mr. McConnell: And I was going to refer you to page 55, in which we gave some--

Mr. Gordon: I will not question your veracity.

Mr. McConnell: --in which we explained this morning--we reviewed this morning some of the barriers to electrical efficiency. And the fourth barrier down there that was given as an example was called "Customer Unawareness of Opportunities." Now, like Hedley, I cannot tell you any numbers associated with that particular event that you identified, but it was a good example.

And one thing that is possible out there in the province is that there is an opportunity to improve the efficiency that would be truly cost effective to do so, but the customer is unaware of it. And so that really means that, if that is the case, one of the ways of trying to make that happen is through education and promotion. And so we identified that as one of the things that we may very well intensify in terms of the future that was illustrated on page 50.

Now, then, however, if the customer is aware of that opportunity, the customer may lack the capital or the customer may desire a short pay-back. And in that particular instance, it may well be desirable if there is a benefit to the society as a whole, and specifically it could well be of benefit to that particular customer, that we could then in that particular case be talking about an incentive being applied in the form of a loan or some other arrangement that would make that happen. And so the answer to your question is yes, those kinds of things are clearly possibilities that could be implemented. I think it has to be tempered with the question of it being practical and it being acceptable to the public that is involved.

1445

Mr. Charlton: So long as it is not ill-tempered.

Mr. Gordon: Mr. Chairman, certainly, you know, we heard from people in the States, for example, and they made it clear that there were instances or examples of where programs were launched in order to save electricity and so forth or to get the customers involved and so forth, marketing programs, but it did not work. And I think you allude to it in some of your presentations.

(Inaudible)

Exactly, so that is something that we can see. But even the very fact I think that you acknowledge that there is a place for incentives and financial incentives to--in other words, I see that as meaning that Hydro as a utility does acknowledge the fact that by getting people to conserve you can see how it is going to mean that you are not going to have to perhaps build as soon in the future.

Now, I am not saying you are going to change your plans about Darlington; I am not talking about Darlington. But the very fact that you bring that point out, Mr. Campbell, I think illustrates that plans are changing.

For your instruction, Brian, what happened was that Tom Campbell indicated that they were looking at financial...

Mr. Charlton: I have been updated.

Mr. Gordon: You got that.

Mr. Campbell: Mr. Chairman, I think that really Hydro has made some major changes in policy from historic patterns in acknowledging that these things are serious options to look, we have to look at. It may well be lower cost or building new plant or it may be a mixture of those two. And very seriously have to do it.

Mr. Gordon: I guess the thing that I am aware of and I think something that the public sees too, you know, when you get these big supertankers out in the ocean and something happens ahead of them 10 miles ahead, the supertanker cannot turn around or it cannot stop. They are just too big, and it takes too much time for all of the instructions to flow through that whole organization. I sometimes think of Hydro as a great big supertanker and it...

Mr. Haggerty: Sounds like Hydro.

Mr. Campbell: It hurts.

Mr. Gordon: No, that should not hurt. I mean, if it shows you how difficult a task it is--

Mr. Campbell: You said it was like Hydro.

Mr. Gordon: --to make changes. But the fact that you are moving in a soft path direction, I think is something that this committee would like to see.

Mr. McConnell: I do not know whether I will be a Hydro employee tomorrow, but I think--

Mr. Campbell: Have you got your 90 points.

Mr. McConnell: --that it is quite clear that with a large organization like Hydro that there is inertia, as you have said, but in our presentation we also pointed out that, you know, in order to bring about change, that society has a resistance to change too, and we are very sensitive to the views of society. And so some of these things that are good things to be done, sometimes you just do not get the public to accept over night. And I think as politicians that you are more aware of that than I am.

Mr. Charlton: You especially, Jim.

Mr. Snell: Do you agree--pay some acceptance to some degree?

Mr. McConnell: I am sorry, I did not get the question.

Mr. Snell: Do you also agree, though, that you influence society's level of acceptance of some change?

Mr. McConnell: Oh, I think clearly that through promotion and through education, that is to say, trying to communicate the benefits to the public, that we can influence the public. But I am saying not instantly; that takes time, and so that enters into what the Chairman was talking about earlier in his paper about the rate at which we can move and that is a part of the reality of going forward.

1450

Mr. Campbell: Mr. Chairman, I think on that we have to be possibly aware of the public view of the future. And I tell you, we have done some studies and we will be sharing them with you at some point; they are not

complete yet. But some of the preliminary findings are extremely interesting. In fact it is good news. It is hard to adjust to good news sometimes but--if you ask people in Canada what they want--I am talking about residential consumers now--they want to have the good life.

They want to have the good life. They want to have a larger house. From our point of view they want to have air conditioning as soon as they can afford. They want to have a dishwasher. They want to have a microwave. They want to have VCRs. But the interesting thing about it, if you do a study across Canada, Ontario is the only place in Canada right now where people not only want those things, but they expect they are going to get them. Very optimistic.

They want to have a good life, and they say those are the things they want, and they do not want to hear about restrictions on that. Now, so while we can do our best to push efficiency and to do that, the signals we are getting are that not only the industry is going to grow, jobs are going to grow, but when people get those jobs and get employed they are going to want to put more demand on our system rather than less.

So we might persuade them to do it more efficiently, but they are saying they want to get air conditioning as soon as they can get it. They want to get dishwashers as soon as they can get it. And in Ontario, the likelihood is that the growth we are going to have in the next few years is going to enable the people to do that. So we have to live with that as well. We can try to get them to do it more efficiently, but they also want to live what they call a good life and God help anybody who tries to say they cannot have that.

Mr. Gordon: Sure. Well, you have made a very good point, Mr. Campbell, and I think if you or your marketing can convince them--"persuade" is a better word, because that is what you have to do--persuade them that by being involved in energy conservation it is going to leave them more dollars in the long run to have the VCRs--

Mr. Campbell: That is right.

Mr. Gordon: --to have all these other things and then you are going to win. I am not going...

Mr. Campbell: That is exactly true, and what they will say is the money they are going to save they are going to spend...

Mr. Gordon: On something that is going to increase consumption, electrical consumption.

Mr. Campbell: That is right. So I am just saying it is an interesting...

Mr. Haggerty: In the market...

Mr. Campbell: So I guess the important part of that is--caution against any way--to think that you can legislate the marketplace, the conduct. You can try to provide incentives to people but--very clear.

Mr. Charlton: It also deals with this question of we get into determining the shape of the load, load shaping. We need to get into shaping some other things as well.

Mr. Haggerty: You are getting off the topic..

Mr. Chairman: Well, I will just say in closing, Mr. Campbell, to you and members of your staff and Hydro, a word of appreciation on behalf of the committee for your assistance not only throughout the hearings but in the preparation for the hearings. If I could give perhaps a verbal recommendation to you, I think that dung should probably be excluded as a primary source of energy from further studies on demand and supply.

Thank you very much.

I want to say just a word of thank you to the members of the committee as well for your indulgence and your participation for the past three weeks. It has been enjoyable.

The committee adjourned at 3:54 p.m.

AUG 26 1987

